

EVIDENCE

**Given Before the
Indian Coalfields' Committee, 1946**

Volume II



सत्यमेव जयते



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QUESTIONNAIRE I

NOTE.—1. This is a general questionnaire and you need only answer the questions you are interested in.

2. A further questionnaire will be issued in respect of the problems stated in paragraph 2 of the Committee's terms of reference.

3. It is requested that ten copies of your reply be sent.

4. REPLIES ARE REQUESTED BY THE 1st MARCH, 1946.

General

I

1. The Coalfields' Committee, 1920, recommended the establishment of a Controlling Authority which would have vested in it the power to—

- (1) regulate the leasing of coal-bearing lands so as to prevent such excessive subdivision as will lead to inefficient and wasteful working ;
- (2) bring the lessors and lessees of neighbouring mauzas to terms in order to avoid the loss of coal frequently resulting from irregular boundaries ;
- (3) regulate the dimensions of pillars and galleries ;
- (4) forbid the extension of an area under pillars where this appears likely to lead to unnecessary loss of coal ;
- (5) prohibit the extraction of pillars under conditions likely to result in collapse and subsequent flooding or underground fire ;
- (6) decide when pillars should be got and by what methods ;
- (7) prescribe the dimensions and positions of barriers ;
- (8) order the isolation of workings ;
- (9) regulate rotation of working ; and
- (10) control workings under land acquired for railways.

The Coal Mining Committee, 1937, proposed the setting up of a Statutory Authority, to be designated the Coal Conservation Authority, with the following functions :—

- (a) administration of the Cess and all arrangements for excavating and transporting sand to the collieries ;
- (b) control over all compulsory and assisted voluntary stowing ;
- (c) control over the section working of seams or parts of seams ;
- (d) control over depillaring ;
- (e) control over rotation of working ;
- (f) control over measures to extinguish or circumscribe existing fires in closed-down collieries which are dangerous to life or property ;

(g) control over new leases.

(h) control over amalgamation of small properties, adjustment of irregular boundaries, transfer of isolated coal-bearing areas which cannot be conveniently worked from the parent property and treatment of abandoned mines ; and

(i) direction of research.

No action has been taken by Government so far to

(i) regulate the grant of leases,

(ii) enforce the amalgamation of small properties, adjustment of irregular boundaries, etc., etc., and

(iii) regulate rotation of working.

Government has also not taken any step hitherto for securing directly the conservation of coal

But Regulations have been framed under the Indian Mines Act to regulate first working, section working and depillaring, and these have a bearing on the safety of both the worker and the workings. A Coal Mines Stowing Board has also been set up and a cess created for assisting or undertaking.

(a) stowing or other protective measures which are required to be undertaken by an order issued by the Mines Department under Section 9 (3) of the Coal Mines Safety (Stowing) Act ;

(b) protective measures essential for the effective prevention of the spread of fire to, or inundation by water of, any coal-mine from an area adjacent to it ;

(c) stowing operations voluntarily undertaken in the interests of safety ; and

(d) for research connected with safety in mines

Independently of the Coal Mines Stowing Board, a Fuel Research Institute is also being established.

Do you consider that the conditions which impressed the two Committees to recommend control by the State over methods of extraction, first working, depillaring, rotation and isolation of workings, dimensions and position of barriers, measures to extinguish or circumscribe existing fires in closed-down collieries which are dangerous to life or property, treatment of abandoned mines, etc., still prevail ?

Do you consider that the action taken by Government by increasing the powers of the Mines Department and by establishing a Coal Mines Stowing Board have proved satisfactory and adequate or do you consider that further action by Government through the same media is required and, if so, what action? Do you consider that greater progress towards the amelioration of the conditions which impressed the two Committees would have been achieved by the introduction of a Statutory Authority on the lines suggested by the 1937 Committee?

II

Grading and Exports

2. In view of the vast plans for industrial development which must of necessity make an increasing call on the coal resources of the land, do you consider that the emphasis laid on the coal export trade by the Indian Coal Committee, 1925 retains as much validity now as twenty years ago? If so, it is necessary to take any special measures for pushing Indian coal in markets which were temporarily cut off during the war?

3. What influence has grading had in reinstating Indian coal in foreign markets and in Indian ports?

4. How have the prices of Indian coal compared with the prices of South African and other competing coals in (a) foreign, and (b) Indian ports during the five years preceding the war?

5. Have existing monetary concessions in respect of export coal proved adequate for the purpose of stimulating the export of suitable coal from Calcutta to Indian and foreign ports?

6. Give the average rail freight charges for coal to (a) Madras, (b) Bombay and (c) Karachi from the Bengal/Bihar fields and indicate the level of sea freights from Calcutta at which shipments to these ports become economical in comparison with the rail route.

7. It has been suggested that a regrading of coal seams has become necessary. Do you agree? If regrading is to be done, should it be confined to seams as a whole, or should the grading of sections of seams be continued as under the Coal Grading Board Act?

8. Is the grading of coal for the internal market desirable? Should it be made compulsory or should it remain discretionary?

9. Do exporters of coal consider that quotations in sterling will assist them in overseas market?

III

Port Facilities

10. What loading facilities (berths, mechanical loading plant, etc.) are now available at Calcutta port for handling coal shipments. Are any developments or extensions contemplated? If so, what is their nature?

11. Are unloading facilities for coal at other Indian ports adequate.

12. What bunkering facilities are available at the various Indian ports and are they adequate?

IV

Railway Facilities

13. It is estimated that the all-India requirements of coal for the next two years will be approximately thirty-two million tons of which about twenty-eight million tons must come from the Bengal/Bihar fields. Are there enough Railway facilities e.g., wagons, track, power, sidings, personnel, etc., to cope with such a movement of coal? If not, what measures can be taken?

14. Though the Indian Coal Committee, 1925 recommended the 10 hours' system of supplying wagons to collieries, the position remains practically unchanged. What are the reasons for this and is a change from the existing position necessary?

15. On the assumption that the present method of allotment of wagons for coal will cease, do you regard the method of allotment in force in 1940 as satisfactory? Or are there any changes you wish to suggest?

16. To what extent have private weigh bridges been installed at collieries? What is the policy of the Railways in this matter? Why was the rebate of 0.1.0 per ton allowed to collieries installing private weigh-bridges withdrawn on the Bengal Nagpur Railway? Is any special encouragement necessary for the installation of private weigh-bridges either for an initial period or permanently?

17. Are there any complaints about the freight payment system in force at present?

18. It is alleged that arrangements for the grant of siding accommodation are unsatisfactory. If so, in what respect are they unsatisfactory and what improvements are necessary?

19. Are there any complaints in regard to the overloading and underloading of coal wagon? Have you any suggestion for overcoming difficulties, if any?

20. To what extent are mechanical loading appliances in use in the coalfields? What their capacity and what supply of open-wagons is necessary to cope with this capacity. To what extent can the demand for open-wagons be met at present and what measures can be taken to cope with the unsatisfied demand? Does there exist any proved adaptation of a covered wagon which can be utilised for loading by mechanical means? If so, are any development in that direction contemplated in India?

21. As existing freight rates from the Rani-ganj field often place a colliery at a competitive disadvantage with another colliery producing the same quality of coal it was suggested by the Indian Coal Committee, 1925 that the question

of introducing the group system of railway freight rates in this field should be considered. The recommendation was not accepted by Government; but do you consider it feasible and if so, what should be the details of such a system?

22. How far is it desirable and possible to introduce seasonal rates for the transport of coal by rail, so as to encourage consumers to obtain their coal in the second half of the year?

V

Raising Cost

23. The Committee would welcome the estimated figures of the cost of coal loaded direct into wagons for various mines in 1935, 1939 and at present. An analysis of costs in the manner usually maintained by each company is also desired. (The information supplied will be treated as confidential).

24. To what extent have mechanical coal cutters replaced manual coal cutting? What is the experience gained as regards the effect of mechanical coal-cutters on raising costs? Has it been possible to use such coal-cutters to their full capacity? If not, what have been the obstacles? Is a general development in favour of mechanisation desirable and possible in (a) old, and (b) new fields in this country?

25. The Indian Coal Committee, 1925, considered that some saving could be effected if rails are laid up to the working face. Has there been any development towards this and what has been the experience gained?

VI

Railway Coal Requirements

26. What is the policy of the Railways regarding the procurement of their coal requirements in future?

27. What is the quantity of coal used by the Railways for their different services over the last ten years? How much of it and of what qualities has come from their own collieries in each year? Please also indicate the qualities and quantities obtained from each of the other supplying fields.

28. What grade of coal (on ash percentage basis) are the present standard locomotives designed to use? Have any modifications or adaptations been made to suit them and/or previous standard locomotives for burning a different grade of coal? Please give the number of locomotives, of present and earlier standards, which have been adapted for burning different grades of coal and which have not been so adapted.

29. What has been the general experience gained regarding adapted locomotives, and depending thereon, what is the possibility of adapting other existing locomotives?

30. From the point of view of coal requirements, what is the policy being followed in ordering new locomotives?

VII

Stowing

31. What measure of success has attended the operations of the Coal Mines Stowing Board? What obstacles, if any, have been encountered, in particular with regard to voluntary stowing which is alleged to be still restricted in extent? If these obstacles are removed, is voluntary stowing likely to increase, and if so, to what extent?

32. The Committee will appreciate if every colliery doing stowing will furnish information about the cost (both surface and underground) of stowing, including all operations.

VIII

Miscellaneous

33. It has been frequently suggested that Section 84 of the Bengal Tenancy Act should be amended to facilitate the summary acquisition of surface rights over land for colliery purposes. Have difficulties continued to be experienced due to the absence of this power and, if so, of what nature and degree of acuteness?

34. Some experiments have been made in this country on the briquetting of coal. What is the experience gained and what is the need for and possibility of commercial development of briquetting in India?

35. What results have been achieved in this country in regard to the washing of coal? What is the significance of these results in relation to the needs of the iron and steel industry and other consumers? What are the economics of coal washing?

36. Previous Committees had recommended the establishment in India of a Fuel Research Institute and this has been implemented by the Government of India recently. Comprehensive plans for research have been drawn up. Are there any points you wish to raise in this connection?

37. What progress has been made in the recovery of benzol as a bye-product in the manufacture of metallurgical coke? Is any special encouragement necessary to facilitate progress in this matter?

38. Are existing facilities for rescue arrangements in the coalfields adequate?

39. What educational facilities, either State or private, are available in the coalfields now and what improvements, if any, should be made or are contemplated?

40. A settled and contented labour force is an essential foundation for a stabilised industry. What steps do you consider should be taken to induce the present migratory coalfields labour to become a settled mining community?

QUESTIONNAIRE II

NOTE.—1 This questionnaire deals with paragraph 2 of the Indian Coalfields' Committees' terms of reference. A separate questionnaire has already been issued on paragraph 1 of the terms of reference.

2. You need only answer the question you are interested in. If you have any suggestions to make on points not covered by this questionnaire but related to the problems under consideration, the Indian Coalfields' Committee will be glad to have them.

3. It is requested that ten copies of your reply be sent.

4. REPLIES ARE REQUESTED BY THE 15TH MARCH 1946.

I

CONSTITUTIONAL

1. Under the Government of India Act, 1935, the power to regulate labour and safety in mines is vested in the Central Government. The Central Government is also competent to deal with the regulation of mines and mineral development to the extent to which such regulation and development under Central control are declared by Central legislation to be expedient in the Public interest. In the absence of such legislation, or to the extent to which Central legislation has not vested power in the Central Government, the regulation of mines and mineral development is to be dealt with by Provincial Governments. Trade and commerce within the Provinces and the production, supply and distribution of goods (including coal) also come within the sphere of Provincial control. No Central legislation has been enacted so far to vest in the Central Government power to regulate mines and mineral development. But, during the present war, the Central Government has been able to exercise powers in these matters and also in the regulation of the production and distribution of coal, amongst other things, by virtue of emergency powers taken. With the abatement of these emergency powers, the position stated earlier will be recreated. Do you consider that the division of responsibility between the Centre and the Provinces that will arise on the lapse of emergency powers is satisfactory? Or do you consider that the Central Government should enact legislation to vest in itself the power to regulate mines and mineral development and to control the production and distribution of coal? Alternatively, would you consider it satisfactory if the Central Government took powers in respect of certain matters only and left the rest for Provincial control? If so, in what matters should the Central Government operate, in your opinion?

2. If you consider that the Central Government should assume power over coal mines and the coal industry, do you agree with the proposal which has been frequently made of late that there should be one separate Central Government Department dealing with all questions pertaining to the coal industry? If so, do you consider

also that a Department should be created under a Member of His Excellency the Viceroy's Executive Council to deal with all questions relating to mineral and mines, including coal?

II

ECONOMICS OF THE COAL INDUSTRY

NOTE.—The committee proposes to deal with the economics of the coal industry under the following head:—

- (a) Structural organisation of the industry.
- (b) Ownership and Management.
- (c) Finance.
- (d) Production.
- (e) Distribution and Marketing.
- (f) Transport
- (g) Price
- (h) Profit.
- (i) Taxation.
- (j) National and International Commercial Policies.

STRUCTURAL ORGANISATION OF THE INDUSTRY

3. A major portion of the coal industry in India is now controlled by Managing Agents most of whom have other industrial interests also. There are, besides, a large number of privately owned collieries; and, lastly, consumer interests, such as the railways iron and steel companies and cement works, own and operate collieries mainly to supply their own requirements of coal but sometimes also for the purposes of trade. Do you consider that the structure of the units of production in the coal industry outlined above is satisfactory? If not, give your reasons.

4. The system of Managing Agents is a historical legacy in the development of the Indian coal industry. Has the system, in your opinion, outlined its usefulness and, if so, what changes would you suggest?

5. Is the type of close alliance between units of coal production and consuming interests, whether through ownership (as for example in the case of the iron and steel companies) or otherwise, a healthy factor from the point of view of prices and wages?

6. What has been the influence generally on the industry of the fact that Indian Government Railways own and operate their own collieries?

OWNERSHIP AND MANAGEMENT

7. It has been suggested that private ownership of mineral rights in Permanently Settled areas and uncontrolled grant of leases for working these properties has led to the dissipation of coal resources and that in order to rectify the position Government should acquire those mineral rights and take power to revise, if necessary, unilaterally, defective provisions in existing leases. Do you agree? If so, what, in your opinion, are the

principal disadvantages that have resulted from the private ownership of rights in coal?

8. Short of Government acquiring mineral rights, do you consider that administration by the State of coal-bearing properties, on behalf of the owners is an adequate solution?

9. If mineral rights remain undisturbed, do you consider that Government should enact legislation authorising State control over the power to lease coalbearing lands (including the terms under which minerals are to be worked)?

10. In the event of the State acquiring mineral rights in coal, do you consider that the national advantage lies in continuing private ownership in the working and disposal of coal, or would you advocate State ownership and operation throughout? If, in your opinion, the system of private ownership should continue, do you think that the State should exercise effective control over production, and/or distribution and marketing?

FINANCE.

11. It has been alleged that a large number of concerns are undercapitalised and are unable to obtain on reasonable terms finance for modernising their equipment and technique. Do you consider that this is true today, and, if so, can you make any ameliorative suggestions?

12. Are you aware of any cases of over-capitalisation in the industry such as is likely to have unfavourable repercussions on the stability of the industry? If so, do you suggest that Government should take any steps to rectify the position?

PRODUCTION.

13. It is stated that one of the great handicaps of the Indian coal industry is the low output per head. What proportion of the cost of coal per ton at pithead do the wages and other perquisites of labour represent in this country? It would be an advantage if details can be given for (a) 1936, (b) 1939 and (c) 1945. Can you state similarly the proportion of wages to cost of coal per ton at pithead in the U.K., the U.S.A., Germany, or other countries?

14. What suggestion can you make for improving the output of Indian coal-mining labour?

15. Do you consider that the system of coal-raising contractors tends to improve output? Do you consider that this system has resulted in unsystematic mining methods?

16. It is estimated that over the next two years or so, there will be a discrepancy of approximately six million tons between the coal requirements of the country and the coal available for disposal. How do you suggest this deficit in production should be made up?

DISTRIBUTION AND MARKETING.

17. Do you consider that a Central Marketing Agency for coal, formed either voluntarily by the trade or under Government aegis, desirable or feasible? Or would you consider a system of

price fixation allied to Government-controlled distribution adequate? Or, again, would you prefer price control related to sales quotas for different mines fixed by the State or privately by the trade in agreement? Do you envisage regional or zonal groupings under the marketing scheme you prefer? Please suggest the outlines of the scheme of your choice and indicate in it the role of (i) the State, (ii) the collieries, (iii) the managing agents or proprietors, (iv) merchants and brokers and (v) consumers of coal.

18. Apart from metallurgical coal, which presents special features, do you consider that there is a case for the complete regulation of the use of different coals for different purposes? If so, is such regulation possible immediately on the lines of war-time practice? If not, what are the conditions that must be fulfilled before any such regulation can be enforced? It has been stated, in this connection, that a complete analysis of all Indian coals is a condition precedent. Do you agree?

19. If you are not in favour of the complete regulation of the use of coals, do you consider that regulation of use by certain consumers only, e.g., railways, is necessary?

20. In the event of complete regulation of the use of coals, or if the grading of coal for internal consumption is introduced, or if, again, a Central Marketing Agency is set up, whose should be the responsibility for ensuring that the correct coal has been despatched by a colliery?

21. Please say what you consider should be the various sizes of coal to meet the market's demands, giving the exact specifications in each case.

TRANSPORT.

22. It has been suggested that from the point of view of overall rail transport economy, the true economic range for the consumption of coal from each field should be determined and that thereafter distribution should be on a zonal basis. What are your views on this and, if you agree generally with the suggestion, can you suggest the details of a zonal system?

23. Please comment on the suggestion that there should be a pooling of rail freights so as to keep the price of coal at various centres at the same level.

24. The view has been urged that the fixation of rail freights on a uniform basis for all qualities of coal is unsound. If you agree, can you suggest the principles of a revised freight rate policy?

25. Considering that the Railways obtain a large proportion of their gross revenue from coal traffic, should the freight rates for coal be influenced by—

- (i) the overall operating costs,
- (ii) costs of moving the coal on the railways, or
- (iii) the principle of "what the traffic can bear"?

It will be helpful if the Railway Administrations would supply relative statistics regarding costs of moving coal and costs of moving all goods.

26. Do you agree with the suggestion that reduced freight rates should be charged by the Railways for trainloads of coal consigned to one consumer?

27. Have you anything to say as regards alleged difficulties that rise from route restrictions on the movement of coal?

28. It has been suggested that if there is a common pool of wagons for the East Indian Railway and the Bengal Nagpur Railway, operated by a central body, the more efficient distribution of available wagons would be facilitated. What is your comment on this?

PRICE AND PROFITS.

29. As to the price of coal, do you consider that a return to free competition is desirable? If not, do you consider that the trade can work out, on a voluntary basis, a system of fixed prices for different grades of coal which, while being fair to the consumer, will be sufficiently flexible to meet the inter-play of supply and demand and will maintain the stability of the trade? What is your comment on the suggestion that Government should have the power to fix prices? In framing your replies, you are requested to take due note of the coal requirements of the country, industry by industry, in the period of post-war industrialisation and reconstruction.

30. In view, of the fact that Indian Government Railways and Iron and Steel Companies consume over one half of India's total output, do you consider that control over the prices of coal supplies to these consumers only would provide a sufficient impetus for achieving stable conditions in the industry?

31. If Government intervention is necessary in price-fixation, can you suggest the details of the machinery and procedure that should be adopted?

32. What, in your opinion, should be the difference in the price f.o.r. colliery between the different grades of coal as classified under the present Colliery Control Orders?

33. What, in your opinion, would be a reasonable basis for price fixation? In particular, what element of profit should be included in the price? Can you say, for the confidential information of the Committee, what element of profit entered into price in (a) 1936, (b) 1939 and (c) 1945?

34. An element of price to the consumer is frequently middlemen's commission. It is suggested that this commission is sometimes excessive. What are your views on this?

TAXATION.

35. If you consider that the coal industry in India is subjected to unduly heavy and multiple

cesses and taxation, can you amplify your view by facts and figures and by comparison with the position in other industries and in other countries? What effects has this level of taxation had on the coal mining industry? In what respects do you consider relief necessary?

NATIONAL AND INTERNATIONAL COMMERCIAL POLICIES.

36. Do you consider any special provisions necessary in international treaties and trade agreements to safeguard the natural export markets for Indian coal? What do you consider these markets to be?

37. What do you consider has been the effect on the industry generally of the implementing by India of international conventions in respect of colliery labour?

III

CONSERVATION OF HIGH GRADE METALLURGICAL COAL

38. What is your definition of metallurgical coal and what known deposits thereof exist in this country?

*39. What kinds of coal were you using in 1938 and what kinds are you using now? What is the reason for the change, if any?

*40. What has been your consumption of metallurgical coal in the years 1936 to 1945? Please give details of the quantities used for different purposes, both coking and non-coking.

*41. How much of the coal shown in (40) above has been drawn from your own collieries? What has been the putout of the collieries and how has the excess, if any, over your requirements been utilised?

*42. What are likely to be your future annual requirements of metallurgical coal, working to full capacity, over the next five years?

43. To what extent can the requirements stated in (42) above be reduced by the fullest possible resort to (a) blending, and (b) washings. What progress has been made in this country in these two matters and has any saving of metallurgical coal been achieved in actual working?

44. Do you consider that iron and steel works are utilising coal in the most economical manner possible? If not, can you suggest any improvements or comment on the proposal to obtain the results of fuel technological research abroad and initiate a study of the coal consumption of these works?

45. Having regard to the known deposits of metallurgical coal, do you consider that a case exists now for restricting the use of metallurgical coal to iron and steel works and other metallurgical works only? Please give your reasons.

46. On the assumption that the steel industry expands to an output, of, say, ten million tons in the next fifteen years, would you consider that a case exists for restricting now the use of metallurgical coal?

* To Iron.....only

47. If restriction is necessary, how do you suggest it should be enforced?

48. If restriction on the use of metallurgical coal reduces the output of such coal, how would you deal with the problem of the collieries which may have to close down in consequence or reduce their output?

49. Against the background of your previous replies, do you consider that it is desirable for the State to own or to own and operate all metallurgical coal? What advantages, if any, can these have over the statutory restriction of the mining and use of such coal?

IV

CONSERVATION OF HIGH GRADE STEAM COAL

50. What is your definition of high grade steam coal and what known deposits thereof exist in this country?

51. Do you consider that there has been a wasteful use of high grade steam coal in this country? If so, what, in your opinion, are the uses to which such coal should be put?

52. Having regard to the known deposits of high grade steam coal, do you consider that a case exists for restricting its use? If so, what form of restriction do you suggest?

53. If, as regards metallurgical coal, you have expressed an opinion in favour of State ownership or State ownership and operation, do you consider that a strong enough case exists for adopting a similar policy in respect of high grade steam coal also? Please give reasons.

V

CONSERVATION GENERALLY

54. What is the present percentage of extraction of coal in India and has there been any improvement in this matter in recent years? If so, what are the reasons?

55. Do you consider that the existing Mining Regulations regarding first working, section working and depillaring are adequate (coupled with stowing when necessary) for securing the maximum extraction of coal? If not, what improvements would you suggest?

56. The Coal Mining Committee, 1937, recommended that rotation working should be controlled. Do you agree, and if so, how do you suggest the control should be exercised?

57. At present stowing for safety can be enforced under the Coal Mines (Safety) Stowing Act. Do you consider that the principle of enforced stowing should be extended to include stowing for conservation purposes as well as for safety? If so, to what kinds of coal should it be applied? Should such stowing be assisted and if so, to what extent and in what manner?

58. Should Government undertake the work of delivering sand for stowing? Is it necessary that Government should acquire sand rights? In both cases, please give your reasons if your answers are in the affirmative. To what extent will either of these propositions interfere with existing arrangements?

59. Should lessors be made to share in the cost of stowing? If so, in what manner?

60. There is a considerable amount of coal locked up under the Grand Trunk Road and Railway lines, sidings, etc. which unless extracted now is likely to be lost irretrievably. Please state if you have experienced any difficulty in obtaining permission to extract such coal and what the outcome of your efforts has been.

61. It is claimed that economy and efficiency in coal consumption are increased by the use of (a) pulverised coal, and (b) colloidal fuel. Have there been any developments in these matters in India? If not, do you consider that any action should be taken?

62. It may be more economical in some cases to burn low grade coal to produce power at or near the pit than to transport such coal. This suggests the desirability of installing more power stations in the coalfield areas and transmitting power to consuming centres. In the Bengal/Bihar area, this would enable the

(a) electrification of the rail track,

(b) supply of electricity to Calcutta,

amongst other things, and would avoid considerable movement of coal that would otherwise be necessary. What are your views on this generally and can you provide any useful data?

63. Have you any comments on present methods of producing soft coke adopted in this country and the recovery of bye-products?

64. Do you think there is a special case for developing the coal-tar distillation industry in India, especially in view of the complete lack of natural gases and insufficiency of petroleum within the country?

VI

MINING LEASES AND FRAGMENTATION

65. To what extent have new leases (including sub-leases) been granted from 1936 to 1945? Can details of the areas and the nature of the terms be disclosed?

66. Many leases contain no provisions for "in stroke" and "out stroke" working. What has been the effect of such omission on the working of coal seams?

67. Where Provincial Governments own the minerals, prospecting licences and leases are granted in accordance with the Mining Rules. Have you any comments to make on the terms of these Rules, with special reference to the period of the leases?

68. Do you think that, under existing conditions, Government should take power to fix standard or maximum rates of royalty and regulate or abolish the levy of salami?

69. How would you define an uneconomic colliery holding? What is the extent of such holdings at present? Do they generally comprise direct leases taken by the present owners? What factors, if any, have been responsible for the fragmentation of holdings?

70. Do you consider that the existence of uneconomic colliery holdings is undesirable in the national interest? If so, why?

71. Do you consider that legislation should be enacted for ensuring that areas leased in future are of proper economic size? Do you think that the existing problem of fragmentation of colliery holdings can be solved by any one or more of the following methods, viz.—

- (i) State ownership of mineral rights and subsequent amalgamation of leases where possible or desirable ;
- (ii) the appointment of a special officer to negotiate between landlords and tenants with a view to amalgamation of leases where suitable;
- (iii) voluntary schemes of amalgamation;
- (iv) legislation to enforce amalgamations.

Please indicate the principles which should govern the method of your choice.

VII

OPENING OF NEW COALFIELDS

72. Are you aware of any untapped or only very partially exploited deposits of coal in this country? If so, can you say anything about the extent and quality of those deposits and the action contemplated to develop them?

VIII

ADMINISTRATIVE MEASURES

73. A number of cesses, Central and Provincial, are now payable in respect of coal. Assuming that the levies made are necessary for the various objects in view, have you any ideas about an alternative and more suitable administrative arrangement for their collection and utilisation?

74. Do you consider that a single body, exercising the functions of the present Soft Coke Cess Committee, the Coal Mines Stowing Board and the Coal Grading Board, in addition to any further duties (e.g., as regards conservation) that may be laid on it, has advantages over the present set-up? If so, what, in your opinion, should be its composition?

75. Do you consider that it will be an advantage to unify the multiplicity of bodies dealing with utility and health services in the coalfields?



SECTION I



Central Government Departments

and

Organisations

Written Evidence sent in by the Geological Survey of India, Calcutta

QUESTIONNAIRE I

I

GENERAL

Question 1. Yes, I consider that the conditions continue to prevail though as a result of the steps already taken by Government on the recommendations of the two Committees, they are less acute. Secondly, I consider that the action taken by Government by increasing the powers of the Mines Department and by establishing a Coal Mines Stowing Board has proved satisfactory but, in order to further ameliorate the situation and with a view to conservation of metallurgical coal, I consider that these powers should be extended. I very much doubt whether they can be extended sufficiently so as to be reasonably effective from the point of view of conservation except by the introduction of a Statutory Authority on the lines suggested by the 1937 Committee.

II

GRADING AND EXPORTS

Question 2. I consider that India should continue to export coal to nearby countries in short supply and from which she expects to import certain essential products (oil, rice, rubber, etc.) necessary for internal consumption. These countries include Burma, Ceylon and Malaya. The coal requirements of these countries are very limited—less than one million tons in pre-war year—and are not likely to increase appreciably so as to seriously affect the general question of India's reserves. As soon as possible, such exports should be limited to non-caking coals unless they are intended for use in metallurgical industries in those countries. There appears, however, to be no reasonable case for subsidising exports of Indian coal or continuing to give rail-freight and other concessions.

Question 3. As a result of grading, Indian coal has recovered in foreign markets and in Indian ports. This is apparent from the foreign trade statistics from 1920 onwards. The special rebate in rail freight and port terminal charges at Calcutta, amounting to 8 annas per ton on coal for export, has also obviously assisted in the recovery of foreign markets, but grading and improvement in quality have no doubt been major factors.

Question 7. One of the main objects of the Fuel Research Institute will, I conclude, be the chemical and physical analysis of the coal seams of India. Their programme will no doubt cover not only sections of seams worked up to the present but also inferior grade sections. When this survey has covered the principal seams, the question of regarding should be carefully considered. For the present, I suggest that the present system of grading by sections be continued.

The above-proposed systematic chemical and physical survey of the coal seams (by the Fuel Research Institute) must obviously be, in the first

place, preliminary otherwise it will be too prolonged and its practical value will be lost. This work would not, however, preclude the carrying out simultaneously of more detailed investigations in the case of a limited number of seams (or portions of seams) that appeared to be worth immediate examination in detail.

This preliminary systematic survey should include the usual chemical and physical tests—proximate analysis, calorific value, caking index, nature of ash. In addition, however, data regarding the physical constitution of the sections that are sampled should be given; that is to say whether a particular section is relatively homogeneous and unlikely to prove amenable to cleaning processes, or whether it includes alternating bands of low ash and of high ash coal and shaly coal which might be separated economically by one of the cleaning processes. In the case of the latter those which appeared suitable for physical separation—cleaning tests should form a part of the normal work of the systematic survey.

The primary objects of this preliminary survey would, therefore, be—

- (a) To give a reasonably accurate idea of the grades of coal included in the principal seams, irrespective of whether or not it has been worked.
- (b) To determine whether particular workable sections of the lower grades are likely to prove suitable for cleaning.
- (c) To determine the grade of the product obtained in the case of those sections amenable to cleaning. Any improvement in caking quality as a result of cleaning should be determined.

Such a preliminary survey would be relatively rapid, admittedly incomplete, yet very informative in so far as throwing light on the principal aspects of Indian coal policy—namely, (i) the question of reserves of usable coal and of caking coal, (ii) the extent to which conservation of metallurgical coal is really necessary, and (iii) the extent to which it will be essential for the metallurgical industries on their part to adjust their methods of iron-manufacture so as to use relatively high ash coals in their furnaces, to rely on imported foreign caking coal after a certain period or to find a substitute process of iron-ore reduction, if they are to survive.

Therefore until we have a more exact idea of the characters of the principal coal seams of India and of the grades of coal that can be used in metallurgical industries, there is I consider no case for changing the present method of grading which has worked reasonably well in the past.

Question 8. The grading of coal for the internal market is certainly desirable and should be made compulsory as soon as facilities for grading are available. It will be for the consumers to ensure that they are supplied with coal of the grade stipulated.

VII]

STOWING

Question 31. The operations of the coal Mines Stowing Board have undoubtedly been successful but to effect conservation on a large scale, the organisation and its scope will obviously have to be very considerably increased.

Question 34. Briquetting to a limited extent has been practised in Assam and in Baluchistan by using local coals. The briquettes are expensive but are very suitable as domestic fuel. I understand that during the war one of the difficulties was of obtaining suitable pitch to be used as a binder. It appears certain that briquetting would not prove economic in the case of the principal Gondwana coalfields where lump coal is available for despatch to consumers. In the case of Baluchistan coal, the proportion of lump coal is very small. Although the coal requirements of Baluchistan for domestic purposes are relatively small, it might be worth continuing to encourage the use of locally made briquettes in order to save the transport of Bengal coal for over a distance of some 1,600 miles to Quetta, etc. by rail; or by sea to Karachi and then by rail (550 miles) plus the distance by rail (150 miles) from the coalfields to Calcutta.

In the case of the recently-discovered brown coal of the Cuddalore area, Madras Presidency, which contains some 15 per cent. moisture (after drying in the atmosphere) briquetting may well be necessary. As soon as bulk samples are available tests covering the use of this fuel should be expedited as it is so obviously important from the point of view of meeting the requirements of the Presidency.

Question 35. The question of washing low-grade Indian coals, is one which deserves early attention. In the past, attempts have been largely confined to laboratory experimental work. These have indicated that it is likely to prove economically impossible to clean the vast majority of Indian coals so as to yield a product containing less than 15 per cent. ash. At the same time the results suggest that at least certain low-grade coals can be cleaned at no great expense so as to yield a product containing about 15 per cent. ash.

More recently large-scale tests have, I understand, been carried out on coal from West Bokaro at the instigation of Mr. J. Thomas, Chief Mining Engineer, M.S. Anderson, Wright & Co. These tests have shown that the lower grade coking coals of that area can be economically washed by the Chance Sand Process to yield a product containing about 15 per cent. ash.

It is apparent that research on the washability of Indian coals deserves encouragement as it is obviously likely to effect considerably the life of the reserves of metallurgical and non-coking steam coals of which India is in short supply.

Question 36. Suggestions have already been made regarding the plans for research by the Fuel Research Institute. Apart from a detailed

physical and chemical survey of India's coal seams, particular attention should of course be paid to the question of caking properties, washability and blending. (See also my reply to Question 7 above).

Question 37. The question of recovery of benzol, etc., is a relatively minor one as compared with the major issue of availability of good quality coal, especially of metallurgical value. If these bye-products are not entirely wasted and are used for essential heating purposes, thus conserving coal which would otherwise have to be used, the principal object at issue appears to be served.

Owners of bye-product plants apparently insist that a subsidy in one form or another is essential for the profitable extraction of benzol. India is in short supply of benzol and the loss of any internal production means equivalent additional imports of petrol from abroad. A decision on the course to be followed obviously depends largely on the question of policy of the Government of India, but on purely economic grounds it is doubtful whether Government financial assistance could be justified except for strategic reasons.

QUESTIONNAIRE II

II

ECONOMICS OF THE COAL INDUSTRY

STRUCTURAL ORGANISATION OF THE INDUSTRY

Question 6. The fact that Indian Government Railways own and operate their own collieries and obtain an appreciable proportion of their requirements from these collieries has no doubt had a steadying effect on the coal industry as a whole. In mining circles, the view has however been expressed that these collieries have been used somewhat unfairly to keep down prices of coal below the economic level, this being possible owing to the fact that a number of the Railway collieries in the Bokaro field are able to win the coal cheaply by open-cast mining from the thick Kargali seam.

OWNERSHIP AND MANAGEMENT

Question 8. I consider State ownership of mineral rights in coal to be the only real solution.

Question 9. Does not arise.

PRODUCTION

Question 16. To make up the estimated deficit in production during the next two years or so, the following steps should be taken :—

(a) Open-cast mining in thick seams should be continued energetically.

(b) The opening-up of new areas, particularly of non-coking coals, should be encouraged. These include the non-coking coals of the middle and eastern parts of the Raniganj field many of which are suitable as steam coal without washing, and new areas in Karanpura, Hutar, Eastern States Agency, Central Provinces and Madras.

For meeting the demand of the Punjab and N. W. F. P. the possibility of working by open-cast methods the Tertiary coals of Jammu Province in Southern Kashmir, should be immediately reconsidered, especially as lorries for transport to railhead are now available. These coals include bituminous and semi-bituminous types which are very suitable for steam-raising.

(c) Mechanisation should be increased where practicable.

(d) Railways should be encouraged to use imported fuel oil in their locomotives along those sections where economic factors permit; e.g. near Indian ports. This would be particularly advantageous in the case of the North-Western Railway where supplies of good quality coal have to be transported by rail from distant coalfield.

DISTRIBUTION AND MARKETING

Question 18. Apart from metallurgical coal, I see no adequate reason for the complete regulation of the use of the different coals for different purposes. The machinery to effect such complete regulation would of necessity be cumbersome and is not likely to benefit industry to any large extent. As research on Indian coals progresses and grading is extended to new and more inferior seams, consumers will be in a better position to judge the most suitable type of coal to meet their requirements.

I would, however, suggest that the Government Department dealing with coal includes an Information Section for advising consumers regarding the types of coal most suitable for their particular use.

Question 19. By restricting the use of metallurgical coal, one would, automatically regulate the use of coal by Railways and other large consumers. No further regulation appears necessary.

Question 20. I am not in favour of the complete regulation of the use of coals but I am in favour of grading for internal consumption. Regulation by Government of the use of caking coals suitable for use in metallurgical industries is essential and, as the proposed chemical and physical survey of the seams progresses, (see my reply to Question 7 of Questionnaire I) additional seams (or workable portions of them) will be added to the list of such coals and will fall within the regulations.

In so far as responsibility for ensuring that the correct coal has been despatched from the colliery is concerned I would, in the main, make the consumer responsible; Government cannot be expected to do this. The consumer should see that he gets coal of the quality ordered.

Government will, however have to keep a check on collieries which contain seams of metallurgical coal in order to ensure that such coal is despatched only to approved consumers. An inspectorate will be necessary for that purpose, and legislation enacted to permit the imposition of penalties when necessary.

TRANSPORT

Question 23. I am definitely against this suggestion. Unless carried out *permanently*, such a policy would be disastrous to industry.

Question 24. During the next several years until such time as the output of non-caking or poor caking (non-metallurgical) coal has been considerably increased so as to replace metallurgical coal in non-metallurgical industries, it will be quite impracticable to restrict the consumption of metallurgical coal without seriously disrupting Indian industry as a whole. It is obviously more important for India that Industry as a whole should flourish and develop instead of being stunted and suppressed for the benefit (in the rather distant future) of the metallurgical industries alone. At the same time I consider that indirect measures should be taken now to discourage the use of metallurgical coal by non-metallurgical industries and I suggest that a simple and effective step would be an increased railway freight charge of Re. 1/- per ton on all coal classed as 'metallurgical coal' and used in non-metallurgical industries and a decreased freight charge of 8 annas per ton on Grade No. 2 and Grade No. 3 non-metallurgical coals. These rates should apply irrespective of the distance over which the coal is transported. This would encourage the use of non-metallurgical lower grade coals at places like Calcutta as the difference in rail-freights would be appreciable. At the same time it would have less effect on the despatch of high grade coal to more distant areas—this is desirable, in order to minimise wagon space over long distances.

It might be argued that the above proposals would not affect the Railways themselves in their capacity of large consumers. Being largely State-owned it should not be difficult for the Government Statutory Authority to enforce the consumption of non-metallurgical coal (in place of metallurgical coal) by the Railways as supplies become available.

III

CONSERVATION OF HIGH GRADE METALLURGICAL COAL

Question 38. Metallurgical coal is normally defined as coal which, on being subjected to high temperature carbonisation, yields a hard, porous coke suitable for use in the metallurgical industries, principally in the reduction of iron-ore.

One could, however, justifiably extend the scope of this definition to include coals which—

(i) can be cleaned economically and, on cleaning yield a product falling within the above definition of metallurgical coal, or

(ii) when blended in reasonable proportion (with or without previous cleaning) with a strongly caking coal yields a mixture falling within the above definition. The term 'in reasonable proportion' might I suggest be taken to imply at least 20 per cent of the poorly caking variety.

In so far as India is concerned, coals of the latter grades—(i) and (ii)—should also be classed as 'metallurgical'.

The maximum ash-content now desired by the metallurgical industries is, I understand, about 15 per cent in the original coal, yielding 20—21 per cent ash in the resulting coke. To what extent this limiting ash-percentage could, in practice, be increased as a result of metallurgical research is problematical. The possibility of some increase in the future obviously cannot be ruled out altogether. Research with that object in view should, therefore, be encouraged.

Some people would, I understand, include high quality, non-caking or poorly caking gas coals among 'high-grade metallurgical coal' and expect that these be regulated and conserved in the same manner as caking coals. It is very debatable whether this proposal can be justified. It is agreed that caking coals are essential for the economic reduction of iron and should, therefore, be classed as 'metallurgical', but in so far as gas coals are concerned it seems likely that moderate to low quality non-caking coals could be used in the industry in place of high grade gas coal for the manufacture of producer gas. The latter (high grade gas coals) cannot, therefore, justifiably be classed under the same 'metallurgical' category and their use restricted merely to suit the iron and steel industries and to the detriment of other coal-consuming concerns. I would, therefore, not include such high grade gas coals in my definition of metallurgical coal. India possesses considerable quantities of good quality non-caking Gondwana coal, low in sulphur—reserves being of the order of 3,340 million tons at the end of 1946—and, apart from the additional reserves of inferior coals, most of these could no doubt be used for producer—gas manufacture.

Regarding reserves, based on data arising from the coalfield surveys of the Geological Survey of India during 1925-30, the Coal Mining Committee of 1937 calculated the reserves of good quality coking coal at the end of 1936 to be :—

Giridih and Jharia fields	20 million tons
Raniganj field	230 million tons
Jharia ..	860 million tons
Bokaro ..	315 million tons
Total	1,425

Allowing for production during the subsequent 10 years, these reserves of good quality coking coal would, by the end of 1946, be reduced to 1,160 million tons.

In quoting the above figure of 1,160 million tons of strongly caking 'metallurgical' coal at the end of 1946, certain factors require emphasis.

(i) These reserves refer to a depth, below ground level, of 2,000 feet. They do not include the reserves that can be expected at greater depths within the various fields. In the case of the Jharia field, for instance, these seams can be expected to continue below 2,000 feet beneath the upper part of the Barren Measures (total thickness 2,080 feet) and the Raniganj Coal Measures (a thickness of 1,840 feet of Raniganj strata being represented in the Jharia field). Similarly, in

the case of the Raniganj and Bokaro fields, calculation of reserves has been limited to coal known or likely to exist down to a depth of 2,000 feet below ground-level, though the seams can be expected to continue at greater depths in the area immediately east of the Barakar River (Raniganj field) and also in Bokaro. With a guaranteed minimum price, there is no reason why the seams should not be exploited to beyond the above estimated limit of 2,000 feet. In the case of the Raniganj Field, I understand that this is already being done in the Dishergarh seam of the Parbelia area.

(ii) So-called *proved* reserves of minerals require to be accepted with caution, especially in the case of those that occur sporadically and are liable to vary within short distances. Coal, though varying in quality and quantity from one area to another, fortunately occurs relatively regularly. Therefore, although the data on which the above-mentioned reserves have been estimated are limited, yet one can assume that they are reasonably correct.

(iii) In arriving at the above-quoted estimate of good quality caking coals, no allowance has been made for potential reserves available after the raw material has been subjected to cleaning. It has recently been proved that certain high-ash coals can be economically cleaned to yield metallurgical coal and, with the progress of research along these lines, we can expect that the figure for reserves of coal of that grade will increase, possibly appreciably. Also, certain of the coals of the Karanpura field and of the fields of the Eastern States Agency and the Central Provinces are likely to prove suitable for blending.

(iv) Again, there are the Tertiary low-ash caking coals of Assam which, so far, cannot be utilised in metallurgical industries on account of the high percentage of sulphur contained in them, but they might well be suitable if this difficulty could be overcome.

Bearing in mind the above, we can, I consider, regard the figure of about 1,160 million tons of metallurgical coal as on the safe side, and sufficiently correct for the purpose of determining the future coal policy of India.

Question 43. My definition of metallurgical coal includes coal which by washing and/or blending can be utilised for producing metallurgical coke.

Progress in washing has been mentioned under Question 35 of Questionnaire I above. As regards blending, a limited number of tests have been carried out and these have shown that certain of the moderately-caking coals of Jharia, Karanpura, Eastern States Agency and Central Provinces fields can be blended with strongly caking coal in the proportion of about 80 (strongly caking) to 20 (moderately caking) to yield a suitable metallurgical coke. But until a systematic chemical and physical survey of the various seams has been carried out, it would be useless attempting to suggest even an approximate figure for these types of fuel.

Questions 45 and 46. I consider that a case definitely exists for restricting the use of metallurgical coal to metallurgical industries as soon as practicable; that is, to say, as soon as the present production of metallurgical coal now consumed in non-metallurgical industries can be replaced by non-caking coal without adversely affecting the latter industries. To impose such a restriction immediately would, of course, be disastrous on Indian industry as a whole and could not be justified.

India's present known reserves of strongly caking coal are stated to be of the order of 1,160 million tons (see under Question 38 above). This figure refers to coal existing to a depth of not more than 2,000 feet. Coking coal undoubtedly occurs at greater depths in certain of the Damodar Valley fields, also there is the problematical quantity of metallurgical coal that will be available as a result of washing and/or blending.

Assuming that the steel industry expands to an output of ten million tons of steel in the next 15 years, that is to say, assuming that it will after the year 1960 consume annually about 12½ million tons of metallurgical coking coal *plus* about 12½ million tons of non-caking coal, and also assuming complete restriction of metallurgical coking coal for use in the metallurgical industries after a period of say 10 years, then, on the assumption that the present reserves of metallurgical coal are limited to the above-mentioned figure of 1,160 million tons, and allowing 75 per cent extraction, the life of the metallurgical-coking coal reserves of India will be limited to about 70 years (dating from the year 1946).

Even if we adopt a more optimistic view and assume that considerable additional supplies of metallurgical coking coal will be found to continue at greater depths in certain of the Damodar Valley fields and that appreciable additions can be brought about by washing and/or blending so that as a result of these factors combined the above figure of reserves (1,160 million tons at the end of 1946) is doubled, yet the seriousness of the position is of the same order. That is to say, even though our figures for reserves of Indian coal cannot be regarded as exact, they are I consider sufficiently accurate from the point of view of framing a policy of conservation, etc.

It is apparent from the above that there is a very strong case for restricting the use of metallurgical coking coal to the manufacture of hard coke for the metallurgical industries. If such restriction is not enforced, then we can expect the complete depletion of India's reserves of such coal within little more than half of the above mentioned periods.

Not only is there a strong case for such restricted use of metallurgical coking coal, but, in addition, those planning the location of future iron and steel works in India should seriously consider the question of constructing them at a seaport where foreign coking coal can be imported relatively cheaply (possibly in exchange for iron-ore of which India has enormous reserves), so increasing the life of India's coking coal reserves.

Question 47. To enforce restriction of metallurgical coking coal, it will be necessary for the Central Government—

(i) to acquire by purchase all mining rights in coal of all grades in India or at least of all areas that contain reserves of metallurgical coal.

(ii) to vest in itself the power to amend existing leases and to regulate future production and methods of working so as to ensure that extraction losses are reduced to a minimum, *e.g.* by amalgamation of small holdings, sandstowing, etc.

(iii) to encourage the opening up of properties containing non-coking coals, *e.g.* eastern Raniganj, Karanpura and Hutar, Eastern States Agency, Central Provinces; Garo Hills in Assam and southern Kashmir in northern India. This can be done by constructing railways or sidings into the various coal-bearing areas.

(iv) to prohibit for a number of years the opening up of undeveloped properties containing metallurgical caking-coal.

During the next 3 and possibly 5 years, very little will be possible in the way of actual restriction of production and use of coking coal. Apart from the difficulty of opening up new properties at short notice, the demand for coal to industry as a whole is expected to increase. After say 5 years, the increase in output of non-metallurgical coking coal can be expected to exceed the annual increase in coal consumption by industry as a whole and, from then onwards, the restricted use of metallurgical coal can be more rapidly enforced without serious repercussions on industry.

Thus, during the next 5 years, we can hope to cut down the use of metallurgical coking coal only by indirect means (*e.g.* preferential railway-freights as suggested in my reply to Question 24 above).

Assuming that, within the next 5 years, or so, and certainly within the next 10 years, India's steel industry expands appreciably, then adverse repercussions of this scheme of conservation and restricted use of coking coals on the coal industry will be minimised and it will be mainly a question of regulating the production of existing mines (producing coking coal) and of directing their output into the proper channels (for use by metallurgical industries).

One of the first steps to be taken must, therefore, be to classify existing collieries into (a) those producing metallurgical coking coal and (b) others, and to examine the former with a view to ascertaining the extent to which production and development can, if so required, be curtailed without affecting the eventual value of the property as a producer of coking coal. In the case of (b), steps should be taken to ascertain the extent to which they can be developed and the production of non-coking coal increased.

Simultaneously, the proposed chemical and physical survey of the principal seams in accessible areas should be expedited (reference my reply to Question 7 of Questionnaire No. I) so that, at the end of 5 years, a reasonably accurate classification into—

(a) areas and seams containing metallurgical coal; and

(b) other known coal-bearing areas, will be possible.

The proposed restriction on the use of metallurgical coal would mean that certain of the State Railway collieries in Bokaro would either have to close down or despatch their output to the metallurgical industries. Restricted working in that field should not be difficult as development underground is very limited.

Question 48. Those affected adversely by the restrictions might be offered properties in areas containing non-caking seams.

CONSERVATION OF HIGH GRADE STEAM COAL

Question 50. Normally, in countries possessing large supplies of all classes of coal, high grade steam coal means semi-bituminous and semi-anthracitic types which are non-caking or poorly caking and have a high calorific value. India is deficient in coal of that quality, limited amounts occur among the lower Tertiary (Eocene) seams of Jammu Province, Kashmir.

In India, therefore, high grade steam coal usually means free-burning coals suitable for steam raising and the definition includes both the high grade caking coals (metallurgical coal) and high grade non-caking or poorly-caking coals (usually good gas coals). Accepting the Indian usage and excluding the coking coals (metallurgical coal), reserves are estimated at some 3,340 million tons (at the end of 1946) down to a depth of 2,000 feet from ground-level. Additional reserves of coal of this type can be expected at greater depths in certain fields, particularly Raniganj, Jharia, Bokaro and Karanpura.

Questions 51 & 52. As regards wasteful use of these non-caking high grade coals, there is no doubt that such coals have been used for purposes (principally steam-raising) for which lower grades could have been consumed but, from the point of view of the country's economy as a whole, it is debatable whether by doing or they have actually been wasted; at least not to the same extent as the caking coals.

These coals do not form a distinct class by themselves to the same degree as do the metallurgical coking coals, which are distinguished by their caking properties. They grade in the lower grades of non-caking coals which though less efficient, can also be used for gas-manufacture and steam-raising, and of which very large reserves are known to exist in India.

Apart from the question of conserving her coal-resources, India is likely during the next 10 and probably 20 years to experience difficulty as a result of lack of rail facilities and shortage of wagons especially as there will be an increasing demand for wagon-space for the transport of equipment and other goods in connection with her developing industries. It would, therefore, be a short-sighted policy to restrict the use of these non-caking high grade coals during at least the next 20 years, for to replace such fuel with lower grade coal capable of giving the same heat-value would mean moving appreciably larger tonnages of the latter. I would, therefore, take steps merely to encourage the use of lower grade coal in local markets by—

- (i) a decreased railway-freight charge of 8 annas per ton on second and third grade coals, irrespective of the distance transported (reference my reply to question 24 above) and
- (ii) the construction of thermal stations, designed to consume low grade coal, at various coalfield centres along railway-routes, combined with the electrification of railways between those centres. This would reduce the consumption of high grade steam coals appreciably.

The question of restricting the use of high grade steam coals should be reviewed after say 20 years, when the condition of industry and our knowledge of the available reserves of Indian coal will permit us to judge whether such restrictions are really necessary.

V

CONSERVATION GENERALLY

Question 57. Yes, for conservation as well as for safety.

The aim should be eventually to enforce stowing for conservation in the case of—

- (i) all metallurgical coking coal, including low grade coal which yields metallurgical coal on cleaning; and
- (ii) all other coals of Selected Grade and of Grades 1 & 2.

To do this will obviously take a number of years. Bearing in mind the accessible sand-supplies an order of priority will have to be arrived out, preference being given to areas in which high quality metallurgical coals, have been developed.

Stowing should be assisted to the extent of delivering sand to central stations in the colliery areas.

Question 58. Yes, Government should deliver the sand at central distributing stations in the various coalfields. Government should certainly acquire the sand rights.

Sand being an essential material in so far as conservation is concerned, it would obviously simplify matters were Government the owners of at least the principal sources of this material; namely, in the Damodar, Barakar, Adjai and Bokaro rivers, etc., of the various coalfields.

As regards delivery of sand to central distributing stations, it will be essential and economic to instal large capacity ropeways and haulages. The question of supply of equipment will certainly be a big problem during the next 10 years. Apart from the fact that many collieries situated at distant points from the rivers would be unable to bear the capital outlay involved in installing such ropeways, etc. it will be essential for Government to intervene from the point of view of assuring that the available equipment is used to the maximum advantage and not to the particular advantage of one Company that happens to have the necessary capital and access to equipment. This does not necessarily mean that Government should operate such plants once they have decided on the particular scheme.

Collieries situated near the various sand sources should, of course, be permitted to make or to continue their own arrangements for obtaining sand for their use, provided these arrangements are approved by the Government controlling authority and do not interfere with other sand-stowing schemes likely to prove more beneficial to the coal industry as a whole.

Question 61. (a) Pulverised fuel gives high thermal efficiencies especially in the case of low grade coal, though with the improvements made in furnace design, the idea of first powdering the coal appears to have lost some of its attraction during recent years. Tests in the use of pulverised fuel in India may well, however, prove useful—for instance, in the case of railway locomotives burning low grade coal and, at the same time, requiring rapid and complete combustion.

(b) Regarding colloidal fuel, this type of fuel has never, I believe, been extensively adopted and it seems very doubtful whether the expense of preparation would yield compensatory advantages.

Question 62. The installation in coalfield areas of thermal power-stations consuming low grade non-metallurgical coal is obviously an attractive proposition. The question requires serious investigation by an expert committee at a very early date.

Question 63. Soft coke is necessary for domestic consumption in the towns and cities (from the point of view of health) and also generally (in order to minimise the use of cow-dung as a fuel, so that it can be utilised as a fertiliser). The method of manufacture at the present day is obviously wasteful and it is suggested that Government should give the lead by installing a pilot plant for soft coke manufacture and recovery of bye-products. The process is not one which can be adopted without careful test-

ing as can be judged by the difficulties experienced in manufacturing soft coke (e.g. Coalite) in confined spaces in other countries. At the same time, it deserves early attention.

Question 64. Please see my comments under Question 37 of Questionnaire I.

The matter appears to require examination from the economic standpoint in order to judge the extent to which such an industry would require financial assistance.

VI

MINING LEASES AND FRAGMENTATION

Question 67. Leases should be of sufficient duration to permit the efficient exploitation of the coal resources contained in the property. In the first place a minimum period of 50 years appears necessary with the option of two extensions of 25 years each.

Question 68. Yes, this would follow automatically once Government acquired the coal rights. Salami should be abolished.

Question 71. Yes, legislation ensuring that areas leased in future are of proper economic size is essential.

The existing problem of fragmentation of colliery holdings can be properly solved only by adopting (i) State ownership of mineral rights and subsequent amalgamation of leases.

Proposals (ii) and (iii) would, I consider, be impracticable and most certainly very prolonged to the detriment of the interests of the country.

(iv) namely legislation to enforce amalgamation would be a poor substitute for (i) and would in all probability entail delay as a result of objections, on the part of shortsighted landlords, to enforced amalgamations.

VII

OPENING OF NEW COALFIELDS

Question 72. Information regarding untapped reserves is given in the publication of the Geological Survey of India (see *Memoirs G.S.I.*, Vols. 56, 59 and 61 and *Records, G.S.I.* Vol. 76, *Bulletins of Economic Minerals*, No. 16 Coal).

From the point of view of untapped, newly-discovered reserves, the brown coal deposits of the Cuddalore area in Madras Presidency are the most important. These will no doubt be dealt with in the reply of Dr. M. S. Krishnan, Superintending Geologist, Geological Survey of India in charge of the Madras Circle. Exploration by drilling (by the Geological Survey of India and the Government of Madras) continues and the possibility of opening up the deposit is now being examined by a mining engineer deputed by the Chief Mining Engineer to the Government of India.

In addition, there are the recently discovered Barakar seams of the Kamptee area near Nagpur, C. P. which are likely to prove important for local consumption. Their development requires to be accelerated. The coal is non-caking and similar in quality to the majority of the Pench and Kanhan Valley coals. At present, however, the *proved* reserves are limited to about one million tons, but there is reason to anticipate that additional reserves are available in that area.

The Pathakhera field in the Betul District, C. P., also requires early attention. A seam apparently containing 10 feet of coal, workable from inclines and shallow pits, has been proved over a part of this field. In quality, this seam together with a 6-foot higher seam is apparently similar to the non-caking Kanhan Valley coals. An 8 to 10 mile railway siding or tram-line (from Ghoradongri Railway Station, G.I.P. Railway) would be necessary in order to exploit the area successfully, the intervening country is relatively flat, though two large *nalas* have to be crossed.

The Geological Survey of India propose to investigate these two fields (Kamptee-Nagpur and Pathakhera) as soon as drilling equipment is available, probably by the end of this year. They also propose to take up immediately the Question of coking coal in the coalfields of the Central Provinces and the Eastern States Agency. A further examination of the coal occurrences of Jammu Province, Kashmir is also contemplated in the near future.

The geological mapping of the Bokaro coal-field is almost completed. Other coal-bearing

areas that will, if possible, be investigated further by the Department within the next 10 years are—

- (i) The eastern portion of the Raniganj field where the measures are hidden by alluvium. Exploratory drilling will be necessary.
- (ii) The coalfields of the Eastern States Agency and of Bilaspur district, C.P., especially those within reasonable distances of existing or proposed railways. This work will include geological mapping combined with prospecting.
- (iii) Possible coal-bearing areas of the lower Godavari valley, Madras Presidency. Geological mapping and drilling will probably be necessary.
- (iv) Coal-bearing areas of the southern side of the Assam plateau. This will entail detailed geological mapping and prospecting.

The above programme will be additional to the work of re-estimating the coal reserves of the principal coalfields in the light of data available since the 1925-30 survey and in conjunction with the proposed systematic chemical and physical survey of the Fuel Research Institute and other bodies. In some instances, geological field work will be necessary but in the main it will be a question of collecting data from collieries, research institutes, etc. and collecting the information with the known geological structure. The urgency of this investigation will obviously be influenced by the nature of the recommendations of the Indian Coalfields' Committee and the action taken by Government on those recommendations.

Oral evidence of Dr. H. Crookshank. representing the Geological Survey of India.

Question. You have suggested that the primary object of a preliminary survey would be to give an accurate idea of the grades of coal included in the principal seams, irrespective of whether or not it has been worked, and to determine the grade of the product obtained. This is really an extension of the work of the Grading Board as it is conducted to-day.

Answer. Has the Grading Board ever undertaken work on actual cleaning of coals, I don't think so.

Question. Do you consider the work of the Grading Board as done hitherto has been of a satisfactory nature?

Answer. I am afraid I am hardly in a position to give an opinion, but as far as I know it has been satisfactory. As a geologist, I would say 'yes'.

Question. Do you not think that the problem must be tackled in a different way—the physical and chemical properties should be investigated in detail and a preliminary survey made on lines parallel to that made in the UK?

Answer. This process is very elaborate. You are anxious to get results quickly. The Grading Board are carrying on with considerable results, I would not describe their work as futile.

Question. But a scientific analysis.....

Answer. It is not scientific, of course, but coal is such an awkward thing and the scientific analysis of coal is only of limited value.

Question. Surely, in order to be able to utilise our various classes of coal in the most economical manner, economical in the larger sense, we should know the physical and chemical characteristics of the various types of coal available in the country.

Answer. We would very much like it, but it is a terrific job and probably that job exceeds the powers of the various laboratories which are available in the country at the present time. One hopes the new Fuel Research Institute will undertake that sort of work. It is going to be a very laborious business. If you want immediate results, you have to carry on with the information which you have got.

Question. In section (c) on page 2 of your reply you say that "improvement in caking quality as a result of cleaning should be determined".

Answer. This cleaning is important. It removes a portion of the ash. It removes shale, which does not cake. The remains would be much more likely to cake.

Question. You have referred to "substitute process" of iron ore reduction. What do you mean by that?

Answer. There are other methods of producing iron by using electricity. This method is well known, but it is extremely expensive. There is also the German method which consists of a big rotary kiln like a cement kiln, where they put powdered iron ore and powdered coal in at one end and they blow burning coal gas up from the other end of the kiln. Iron and slag settles in the kiln and is tapped off. When it is cooled, it is broken and the iron is separated from the slag by an electromagnet; the iron produced is suitable for conversion into steel. This method is known as the KRUPP RENN PROCESS. It has a good number of merits. It does not require high temperature. It is a promising thing. You can make use of powdered coal, even non-coking coal.

Question. Was it a success?

Answer. That requires investigation. There was a big article in the IRON & STEEL in the middle of March. It gave no figures as to costs. But the Germans have been using it.

Question. This preliminary survey of our coal deposits—do you think we could complete it within five years?

Answer. I should have thought that you could get a lot of work done in five years.

Question. You must have seen the scope of the proposed Fuel Research Institute in India. I was wondering whether you have any comments to make on the adequacy or otherwise of the set up.

Answer. My recollection is that it was very wide and pretty sound.

Question. Apart from metallurgical coal, you see no adequate reason for the complete regulation of the use of different coals for different purposes. Perhaps you consider that the consumer has the right to purchase the type of coal which he considers more suitable for his purposes?

Answer. I take that view. A consumer is entitled to use the type of coal he wants, provided he is not inordinately wasting coal.

Question. Do you think by putting ordinary restriction on the use of metallurgical coal, you will achieve economic use of coal, by such a large consumer as the railways?

Answer. I think the railways are vastly more important to India than metallurgical coal. I should be very careful as to what restrictions are placed on coal, particularly for use on railways at a long distance from coalfields.

Question. You recollect the estimate of good coking coal reserves made by the Coal Mining Committee, 1937, on the basis of Dr. Fox's figures. Have you any further comments on that, e.g., about new reserves, etc.?

Answer. I do not think there has been any increase. 1,160 million tons is a fair estimate of the amount of coal of the type at present used by steel works which is likely to be developed down to 2,000 ft. in depth.

Question. The problem is this. We have been asked to recommend measures for the conservation of certain types of coal, if conservation is considered necessary. We must have some correct data to base an opinion on. We should like to know whether we are to confine our estimates to coal measures up to 2,000 feet or we should go down below that and include that coal in our estimates?

Answer. I think you ought to go further because the custom in all mineral industries is to begin at the surface and as the prices rise you go deeper. In Europe they certainly have gone down to 5,000 ft. Therefore, I cannot see why it should be impossible in a thick seam of good caking coal to go down 4,000 ft. in India.

Question. You have stated that caking coal undoubtedly occurs at greater depths in certain of the Damodar Valley fields. To which part of the coalfields do you refer?

Answer. I think it is largely in Jharia. Jharia field is more or less basin shaped and if you can go deep you may hope to get good coal.

Question. We have been told that if you go down very deep, there is a great danger that the seam will be found burnt. What have you to say as regards that?

Answer. I do not think there is any particular reason for igneous intrusions and burnt strata as one goes deeper.

Question. Has any fresh data been collected since the 1930 survey was made in regard to the various coalfields in India?

Answer. A little about the Assam coal fields and the lignite in Madras. A little work has been done in the Godavari basin also. I do not think this has gone far yet. Then I was working on all that area lying south of the East Indian Railway and north of the Pench Valley, but except that there are possible places where it might be worth boring, I found no coal. That does not mean that there is no coal for certain.

Question. Could you tell us whether the present strength and the contemplated extension of the Geological Survey is adequate for the functions for which the Survey has been created?

Answer. The present strength is inadequate. It is an old story and I need not beat that drum. The future size is to be increased to 150 strong and it would certainly go a long way. If it is well organised it will help a good deal. But these are all big IFs.

Question. Do you think the Geological Survey is an ideal advisory body to the country on this work of proper prospecting?

Answer. At present we just report the presence of coal. A Mining Engineer will be required for the Geological Survey for this kind of work. But I think the real prospecting is better left in the hands of those who specialise in it. My views may be Victorian, but that is my honest opinion.

Question. Question 38; Can you, from your knowledge, tell us what is a satisfactory composition of a gas coal?

Answer. I can't tell you straightaway, but I should have thought that you could use almost any coal for producer gas at a pinch. I know that Tatas have been saying that they require the best Raniganj coals for gas producing. But I can only add that in any modern book on coal, they would say that almost any fuel can be used for producer gas, but if you ask people who actually use them, they say "we want the best coal".

2. WRITTEN EVIDENCE SENT IN BY THE COAL MINES STOWING BOARD, CALCUTTA—

QUESTIONNAIRE II

Question No. 57. The line of demarcation between voluntary stowing for safety and stowing for conservation cannot be clearly defined. It is clear that stowing for safety results in conservation. There might therefore be some advantage if the scope of Coal Mines Safety (Stowing) Act could be enlarged so as to permit of the grant of assistance for conservation also. The funds of the Board are not at present adequate for the grant of the optimum assistance for voluntary stowing operations and it would be necessary to augment the funds, so that adequate assistance may be given for all stowing operations voluntarily undertaken. Such assistance should take the form of

- (i) free supply of sand or other stowing materials at the pit head of the Colliery
- (ii) payment of proportion of the direct cost of stowing underground, according to the circumstances of each case.

The Coal Mines Stowing Board should be responsible for the grant of the assistance and should decide in each case whether the stowing is necessary for safety or conservation.

Question No. 58. At present only a few of the larger collieries have aerial ropeways or other arrangements for the transport of sand from the rivers to the collieries. Several Collieries, particularly the smaller collieries, have no means of transporting sand, some are using surface soil and subsoil for stowing operations but, because of the limited quantity of material available, such material cannot be used extensively. Government, or the body set up by Government for the purpose, should therefore arrange to deliver sand free to all collieries who wish to undertake stowing either for safety or for conservation and who have no arrangements of their own for the transport of sand. Such Collieries as have their own aerial ropeways and other arrangements could be requested either to hand them over to Government on payment of compensation or in the alternative, they could be assisted by the Government for the cost and up-keep of these installations to the extent to which they are used for stowing operations.

Sand rights. Rights to take sand for stowing from large areas of river beds near the coal-fields have been taken in certain cases on long lease by some of the Companies who were the pioneers in the field of stowing. There has so far been no difficulty on the part of any Colliery or the Coal Mines Stowing Board in getting sand on sub-lease from them on payment of a nominal royalty. The Board however has felt that powers should be taken by Government in order to enable the Board to take sand from the rivers so that such power may be exercised if and when necessary. The Scheme for the construction of Dams across the Damodar, Adjai and Burrakur rivers is also likely to affect the replacement of sand during floods in these rivers at the points where

the sand is extracted for stowing purposes. Government may therefore have to take steps to ensure that adequate supplies of sand are available in the rivers.

Question No. 59. No. There may be too many practical difficulties in allocation and collection of such a share.

Question No. 73. No.

Question No. 74. No. The Soft Coke Cess Committee was constituted to popularise the use of soft coke and its main function has been propaganda for the use of soft coke for domestic purposes. The Coal Grading Board was constituted to grade coals so as to find an export market. The Coal Mines Stowing Board is concerned with safety in the Coal Mines and its functions cannot in any way impinge upon or overlap the functions of any of the other bodies.

If each organisation retains its independent existence there would be greater facilities for its growth and for specialisation in its field of activity to the ultimate advantage of the mining industry and to the country as also for the day to day work of each body. The combination of all these functions in one body may tend to make that body unwieldy and may not facilitate the requisite extent of specialised attention to the problems which are of widely different types.

So far as the Coal Mines Stowing Board is concerned, labour shortage and lack of machinery created by the war were to a large measure responsible for retarding the protective works and other operations directly undertaken by the Board as also the stowing, blanketing and other operations for which assistance was sanctioned. Now that the war is over the work of voluntary stowing is likely to increase. It may be noted that in 1946-47, 71 collieries, expected to stow 82 lakhs tons, have been placed in the priority list for assistance from the Board for voluntary stowing as against 56 collieries in 1945-46 expected to stow 64 lakhs tons. The number of protective works on a large scale directly undertaken by the Board increased in 1945-46 and during the next year some other large scale works e.g., Lodna area, Nimcha area are also likely to be commenced. A scheme of fire watching in order to detect and tackle underground fires with the least possible delay has been put into operation recently. A Scheme of Research into problems connected with stowing has been sanctioned and the necessary investigating staff is being recruited. Arrangements for the supply of sand for stowing to several collieries in the Jambad Kajora Toposi areas is under examination by experts and will be put into operation as soon as possible. Thus, the field of activity of the Board is to be enlarged in the next few years and in order that the plans may be put into operation and worked successfully, it is felt that the Board should continue to function independently instead of being made a part of a large organisation.

OPAL EVIDENCE OF MESSRS. MULLICK & KIRBY, REPRESENTING THE COAL MINES STOWING BOARD, RECORDED AT CALCUTTA ON 6TH JULY 1946.

Question. Question 31. We put to you a pointed question about the measure of success that has attended the operations of the Stowing Board. You have not chosen to reply in so many words. But apart from the statutory restrictions on the activities of the Stowing Board, do you consider the progress in this matter has been satisfactory by and large?

Answer. I think we are doing what we can with the limited resources at our disposal. The Board was constituted on the basis of the 1939 Act and in the course of the last 6-7 years, they have made some progress, although it is not so satisfactory.

Question. What are the limiting factors?

Answer. First is finance. Then due to war conditions, we could not get labour and machinery. Money was allotted for various purposes but actually we could not use the amounts and accomplish the work. For example Rs. 2 to 3 lakhs were allotted for the Jharia fire area but owing to shortage of labour and machinery, the amount could not be spent.

Question. Do you consider the war conditions are now over?

Answer. No. Till such time as we can get machinery—ropeways and transport facilities to bring sand—I do not think our activities can increase. People are waiting to put in ropeways, but they cannot get machinery. There is another important reason for the delay. All the time there was an acute shortage of wagons for sand loading.

Question. Do you contemplate any expansion of stowing in the future?

Answer. We are expanding our activities but we cannot always forecast. For example as regards protective works we cannot foresee the outbreak of fires.

As regards compulsory stowing under section 9 (3) of the Stowing Act, we anticipate delay due to lack of supplies of sand or labour troubles.

Then as regards voluntary stowing, applications are increasing year by year and there is no doubt there would be more if facilities for getting sand could be provided.

Question. Has the Stowing Board undertaken any research in the matter of using an alternative stowing material?

Answer. A Research Committee has been set up. Investigating Officers have been appointed and these matters will be thoroughly investigated. Apart from sand, other materials are used such as surface sand, ash, etc. The question of pneumatic stowing may come in isolated cases where it is inconvenient to get sand.

Question. It has been put to us that pneumatic stowing is the only efficient means of tackling the whole question.

Answer. You have been wrongly informed. I don't think that any mining Engineer will use pneumatic stowing when sand is available and can be used under the conditions as exist in India.

Question. From the technical angle, does the density of the pack increase with pneumatic stowing?

Answer. The same result is achieved by first stowing sand hydraulically 2 or 3 ft. deep, and then after it has consolidated doing further stowing, and so on. When sand facilities are available, I don't think a pneumatic process will be adopted because it is costly. There is also the possibility of igniting gas.

Question. But pneumatic sand stowing has been extensively used in Germany?

Answer. Because sand supplies are not available.

Question. Sand can be brought to the Collieries by (1) Haulage (2) Pumping and (3) ropeways. Do you see any decided advantage in any one of these three methods from your experience?

Answer. Each is suitable in different conditions.

Question. In respect of costs which method do you think is most economical?

Answer. Pumping is giving very satisfactory results, at some mines but for small projects it will not pay to instal pumps.

Question. We are told by one or two Collieries that the cost per ton of sand by pumps is higher than the average cost by ropeway haulage.

Answer. It is difficult to generalise. Where there is proper organisation in regard to pumping, and conditions are suitable I am in favour of pumping. It will depend on the quantity of sand required and the lead etc. to the Collieries.

Question. What is your opinion in regard to the 5 year or 10 year plan of stowing which will be more expeditious : utilising ropeways, belt conveyors or the rail track?

Answer. Rail may be more advantageous for small quantities regarding the other two, the capacity of the belt conveyor may be limited. It will depend on the distance also. There may be too many complications regarding the belts; if one part gives way, till assistance is given, the whole work will come to a standstill. The best method of transport depends on conditions. I know very little about conveyors of large capacity over long distances.

Question. Do you think it is desirable to have only one authority for looking after stowing in all coalfields?

Answer. Having a number of separate bodies will not make much difference. After all they will work one system as agreed to at the top. Any scheme will be decided by the experts, whoever the authorities may be at the top.

Question. What, in your opinion, are the seams of coal which should be stowed for conservation?

Answer. Anything from 10 upwards in Jharia. Those seams are liable to fire and they contain good quality coal. It may be that some of the lower seams—7 and 9—may also require to be stowed. In Ranigunge, stowing is necessary in the case of Sanctoria, Poniat, Ghusick, Hatnol and Koithi, etc., which are all likely to fire. It will be necessary to stow at the Chandi (C.P.) mines and at some Mines in Central India.

Question. Is it your opinion that the increased activities in the matter of stowing for conservation should be entrusted to a body like the Stowing Board or should there be a separate body for the purpose?

Answer. It will be only necessary to amend the Stowing Act. The authority concerned could issue orders for conservation in the same way as the Chief Inspector of Mines issues orders for safety.

Question. If stowing is made universal, do you think the existing private ropeway installations should be taken over by the State or by the Stowing Board in order to rationalise the distribution?

Answer. I don't see any necessity for that if they are working efficiently.

Question. I was not referring to the question of efficiency. A rationalised system of distribution of sand all over the coalfields area may necessitate some sort of a grouping in regard to supplies and it may be necessary from the technical point of view to take over control over the working of these ropeways.

Answer. I do not see any necessity really of the policy of stowing for conservation is accepted by Government, they will have to introduce many measures. Then, if those ropeways which are already installed, are not functioning properly, they could take them over. Or again, if for purposes of uniformity, it becomes necessary to take over these installations it may be done on payment of compensation. Perhaps we should wait until such a stage is reached.

Question. Mr. Kirby, you have been good enough at my request to prepare a note about the priority which should be given to the various coalfields in the matter of stowing. Has the note been prepared with this prominent feature before you, i.e., the most valuable coals should receive assistance in the first instance—valuable in the sense that the reserves are limited—or has it been prepared from the safety angle only?

Answer. Mr. Kirby: Conservation as a whole. I realised that safety and conservation are inseparable. The best grade coals are susceptible to spontaneous heating.

Question. Reverting to my previous question about the aerial ropeways: Such Collieries as have their own ropeways, they could either be requested to hand them over to Government on payment of compensation or, in the alternative, be compensated for the cost of upkeep of these installations. I want to know your views.

Answer. As far as we see, if a Colliery is doing its job of stowing efficiently, why not let it continue to do so. Some mines would probably instal ropeways much quicker than Government.

Question. You have said that the Damodar Valley Project may affect the replacement of sand during floods in these rivers. What reasons have you got for arriving at this conclusion?

Answer. The reasons are quite plain. If all these dams are constructed, there won't be any floods and the sand taken will not be replaced.

Question. A contrary opinion has been expressed by experts. Has the Board made any enquiries from the Damodar Valley Project administrators?

Answer. We have. There is a divergence of opinion as regards the replacement of sand. Again we do not know of any definite plans.

Question. You have expressed certain views about control over the functions of the Coal Grading Board, the Stowing Board, etc. The suggestion was not that one body should perform the functions of all these Boards, but that these should work under one Central Authority, purely for administrative purposes.

Answer. There appears to be no objection.

3. WRITTEN EVIDENCE SENT IN BY DR. LAHIRI, FUEL RESEARCH INSTITUTE.

QUESTIONNAIRE I.

Question 1.

Answer. Increase in powers of the Mines Department and jurisdiction of the Coal Mines Stowing Board have proved to be inadequate. If further action is taken a Statutory Authority on the lines suggested by the 1937 Committee should be introduced but in my opinion nothing short of nationalisation and complete control over production and distribution will solve the problems.

Question 2.

Answer. In view of the coming industrialisation in India and in view of the fact that production of coal is not sufficient to meet the requirements of the country's needs, the export market for Indian coal has lost its significance and importance at least for the time being. There is at present no necessity of adopting special measures for pushing Indian coal in foreign markets and if any steps are taken in this direction great care should be exercised so as not to repeat the mistakes in legislation regarding grading of Indian coal. It is well known that the grading and tariff concession meant for export trade have given rise to very unsatisfactory mining practices with some disastrous effect to our already none too extensive coal reserves.

Question 3.

Answer. The grading certainly had considerable influence in reinstating Indian coal in the near East and China coast markets, but South African coal was allowed to compete with Indian coal in the Bombay market. As mentioned in answer to question 2 the grading resulted in development of selected mining, leading to great loss of coal. Further, only the better grade coals could take advantage of the grading system and the low grade coals could not in any case be benefited by such a legislation. The result has been to condemn the mining of low grade coal to put a premium on better quality coal.

Question 5.

Answer. Yes, but as stated above the position of the general industry has been unhealthy.

Question 7.

Answer. It is not really a case of 're-grading' of seams as the existing data, in my opinion, are dubious and perhaps misleading. No systematic Physical and Chemical Survey of Indian coal seams has been done and as such it is the most urgent problem regarding both marketing and utilisation of Indian coal. We wish to avoid the word 'grading' altogether and substitute 'Physical and Chemical Survey' instead. A survey must take into account the whole of the coal seam both laterally and vertically, but at the same time sub-section of a seam will have to be analysed for their special properties, if any. Under no condition the sectional grading of seams as has

been done under the Coal Grading Board should be continued as under the present circumstances this is a direct incentive to selective mining of coal leading to great waste.

Question 8.

Answer. The whole system of grading as has already been pointed out is wrong in outlook. It is certainly not desirable for the internal market. Instead of grading for internal market, we may substitute a sliding scale of prices according to the utility of the fuel to different classes of consumers and, I think, under the conditions prevailing in this country it should be left to the individual until enough data are available to enable us to work out a scheme for Government Control. Overseas market of Indian coal is not really important enough, especially in view of the increasing demands of coal in India to allow such artificial conditions in the industry to be created as has been done by the Coal Grading Board Act.

Question 13.

Answer. There does not appear to be enough rolling stock in the country necessary for handling extra coal production. As a first measure, both the rolling stock (open wagons) and private assisted railway sidings should be increased.

Question 24.

Answer. Mechanical coal cutters have replaced manual coal cutting in India only on a limited scale. Under our conditions it is difficult to say without actual data, regarding the effect of using machine cutting on raising costs. In a seam where the ash content of the coal is fairly high, machine cutting would undoubtedly raise the ash percentage of the coal 'as mined' and unless coal cleaning practices are introduced machine cutting is likely to have adverse effect on the prices. Machine cutting will have to be introduced on a greater scale if we are to increase our production of coal to meet the demands of the coming industrialisation of the country. It would therefore appear that machine cutting will have to be combined with coal cleaning methods to obtain the most economical figure for raising costs.

Question 28.

Answer. To my knowledge little or nothing has been done to adopt standard locomotives to burn different grades of coal. I should point out that ash percentage of coal for use in locomotives matters only from the economy point of view in as far as a locomotive has to carry more coal than necessary with a higher ash coal and not from the technical point of view. Regarding the needs of locomotive fuel the qualities to be considered are the percentage of volatile matter, the size of coal and the clinkerability of the ash.

Question 29.

Answer. There is every possibility and it is merely a matter of technical detail, of adopting existing locomotives to different grades of fuel. There is also a possibility of converting these locomotives into pulverized fuel firing units. The main difficulty in this case has always been what is known as 'bird-nesting' in the flue exit, but manufacturers assure that this can be overcome if the problem is tackled earnestly.

Question 31.

Answer. Voluntary stowing is not likely to increase, at least in the case of smaller collieries. The only way to ensure maximum extraction under Indian condition is to depillar with stowing. As is already well-known, this becomes expensive for many collieries and many of them cannot afford to do this even with partial aid from the Stowing Board. The problem would appear to be insoluble as long as private ownership continues unless a very high ceiling rate is allowed for coal or the industry is heavily subsidised.

Question 34.

Answer. To my knowledge no published information exists on briquetting of coal in India. Some experiments were to be commenced by Prof. M. Qureshi in Hyderabad under a grant from the Council of Scientific and Industrial Research but this work is now said to have been transferred to the Osmania University, Hyderabad. No information exists regarding the results. The only other experiment on briquetting that has come to my knowledge is a little work on briquetting of Palana lignite in the Bakanir State. This was carried out without any binder and under over 8 tons per sq. inch of pressure. The operation was said to be quite successful. However there is no reason why the commercial development of briquetting would not be successful in India.

Briquetting on commercial scale has been practised for many years in Germany, both for manufacturing domestic coke as well as coke for industrial and metallurgical purposes. In England briquetting of anthracite duff only is practised in South Wales. In India there is a great possibility of utilising the so-called 'mines waste' coal (slack coal is said to be about a third in quantity of total raisings) through briquetting. It may be pointed out that this slack coal is often a better coal from the ash point of view being more vitrainous in nature. This slack coal can be briquetted either with or without binder as the case may be and can be carbonised under low temperature conditions for yielding smokeless fuel for the domestic fuel grate, as well as for recovery of enormous quantities of by-products. Experiments will however have to be conducted on briquetting which should cover investigation on the nature of the binder, the strength of the briquettes (or of the coke produced by carbonisation of the briquettes) and briquetting without binder. Lignitic and brown coal, if they contain waxy matter, can probably be briquetted without binder under sufficient pressure. There is also

the possibility of producing coke from so-called non-coking coal by briquetting under pressure and under elevated temperatures. Experiments on these lines were carried out in the Department of Physical Chemistry of Warsaw University under the guidance of Prof. Swietoslowski and were reported to be quite successful.

In my opinion briquetting in India on a commercial scale would only be possible if it is carried out as an adjunct to Low Temperature Carbonisation Industry.

Of course, everyone is aware of the indigenous briquettes made in India from the coal dust or slack coal with cowdung and earth. Such a process is however too primitive and uneconomical to be used on a commercial scale. There is a possibility in India of utilising molasses (which is a waste product of sugar industry) as a binder for coal briquettes.

Question 35.

Answer. Early in 1910 some experiments in froth flotation of coal was carried out by Mr. Randall. The results were rather unpromising. Since then almost everybody has condemned coal washing in India as being uneconomical.

A large volume of work has however been carried out during the recent war years under a grant from the Council of Scientific and Industrial Research at the Indian School of Mines. In all cases work has only been carried out with reference to gravity cleaning and these results only bear relation to heavy medium cleaning processes. This work has already justified itself by persuading two big firms in India to order heavy medium coal cleaning of plants of a capacity of 200 tons per hour. The need for research on coal cleaning can hardly be over emphasised, specially in view of the needs of the iron and steel industry. Many of the so-called inferior grades of coal which might be perfectly suitable for burning on locomotives, and is discarded chiefly because of their high ash content, can be utilised to a large extent by having them cleaned. Similarly many coal seams which are coking in quality but are condemned for making blast furnace coke for their high ash content, can also be improved and up-graded by reducing their ash percentage.

Besides lowering the ash percentage it has another great benefit, which can hardly be estimated in terms of money viz. supply of an uniform quality of coal for the coke ovens for the manufacture of blast furnace coke. Any coke oven manager would testify the ease and economy which can be obtained from the supply of uniform grades of coal. Indian coal, it may be pointed out, is notorious for variation in quality both laterally and vertically in the same seam and under such conditions coal cleaning would ensure the despatch of an uniform grade of coal from any particular seam or a group of seams. This will also have a very important bearing on blending of coal for manufacture of blast furnace coke.

Further, it is often possible by washing to recover a percentage of coking coal out of a seam of non-coking coal by gravity separation methods, which would not otherwise be possible during extraction. Experiments on these lines have been carried out in South Africa and results show that sometimes even upto 20 per cent of coking coal can be recovered from a so-called non-coking seam by washing at a low specific gravity say 1.38. It must be emphasised however that the whole technique of coal cleaning is still in its infancy and great strides may be expected in the near future when a greater knowledge of surface chemistry is gained.

In view of large reserves of inferior grades of coal, it is imperative that India should initiate extensive researches on these lines. Indian coal is likely to give better results in washing with smaller sizes. Although there would be a limit to size for cleaning coal by gravity washing, it is quite likely that froth floatation methods would give much better results. This is rather interesting from the point of view of iron and steel industry, as the size of the coal needed for making blast furnace coke is generally below $\frac{1}{8}$ " mesh size and this grade of coal is particularly suitable for cleaning by froth floatation methods. No two coals however respond to the same degree, even if they were of the same type and composition, to a particular wetting agent in the froth floatation process. It is a matter of the surface of the coal particles and it is always a question of actual experiment to discover as to which wetting agent would give the most successful result. It is therefore unwise to condemn froth floatation results only from one series of experiments, as was done by Randall with Indian coal.

Regarding the economics of coal washing, it is difficult to give an estimate under Indian conditions, but larger the plant, the greater is the economy. Under the conditions of the United Kingdom it generally costs 3 to 5 pence per ton for cleaning coal by heavy medium separation process, combined with either a Rheoleveur or Hoyais method of cleaning for the lower sizes, below $\frac{1}{4}$ th.

It is hardly conceivable that all the sundry small collieries can possess coal cleaning plants for their individual mines and under Indian conditions it is more likely to pay to have central coal cleaning plants for groups of collieries. This is also the trend in coal washing in the United Kingdom and in the United States. It may be pointed out that there is hardly any single process of coal cleaning which can efficiently handle all the size grades of coal. One would have to combine 3 processes for handling the various sizes of coal from 8" to 0". A central coal cleaning plant which is to be put up in England may consist of a heavy medium separation plant such as Chance sand floatation unit, Barvoys barytes and day suspension unit or a Tromph spathic iron ore suspension unit (or a magnetic suspension unit as manufactured by American Cymamide Co.) for size, 8" to $3\frac{1}{8}$ " (2) Reheelveur or some such box

washing unit for sizes $\frac{3}{8}$ " to $\frac{1}{8}$ " or 1/10th and (3) froth floatation unit, either of the Elmore vacuum type or Denver trough type, for 1/10" to 0".

During the recent war years cleaning by centrifugal forces in conjunction with heavy medium separation has also come into use.

There is therefore a great need for instituting researches in the laboratory and on pilot scale plants for coal washing in India and it can definitely be stated that money spent on such investigations will surely bring handsome dividends to the industry, as well as to the nation.

Question 36

Answer.—In this connection my report on the establishment of the Fuel Research Institute has already been submitted to the Chairman of the Coalfields Committee and a copy of the printed report will be submitted as soon as it is published.

It may however be pointed out that both capital and recurring grants sanctioned for the Institute is totally inadequate for efficient and useful working of the Institute. No funds are available for establishment of pilot plants of any type. One would have thought that this particular branch of research work being most vital for industry would obtain a greater financial support than what has been forthcoming. Grants are available only to construct suitable buildings and equipping the laboratory on an academic scale. Much greater financial resources would be needed if any work on pilot plant and industrial scale have to be carried out at the Institute, and it may be pointed out that without such work, the efforts of the Fuel Research Institute would be only of limited value to the industry.

A recurring grant of Rs. 2.5 lakhs per year from the 5th year onwards has been sanctioned for the Institute and this hardly provides for a staff that in my opinion will be needed for Physical and Chemical Survey of the coalfields alone. I cannot but emphasise this point strongly for consideration of the Coalfields Committee. I would request the Committee to consider levying of a cess on the total production of coal in India for carrying out fuel research work. Of all the cesses imposed on coal industry, I am sure, this one would bring the greatest benefit to the industry in the long run.

Question 37

Answer.—To my knowledge there are only three plants in India, viz. coke ovens of the Tata Iron and Steel Co. Ltd., the Government Coke ovens at Giridih and the Barraree coke ovens near Dhanbad, where benzole is recovered as a by-product in coke manufacture. There is certainly a greater need of encouragement and perhaps compulsion in this direction. I must however point out that recovery of benzole alone would hardly be enough for the establishment of a by-product industry.

Tar distillation methods in India (and for that matter even in the United Kingdom) are still very poorly developed. There is only one tube distillation plant in England. Tube stills last as much as 16 times as Pot stills and are infinitely more accurate, efficient and saving in labour. 'Counter-current washing' methods must also be introduced for refining and purifying the other by-products of coal tar distillation. It may be noted that Low Temperature Distillation of coal would yield a liquid fuel which is highly suitable for aviation purposes and for which the aromatic type of fuels like benzole recovered during high temperature carbonisation are entirely unsuitable.

We must also recover phenols and other materials which are per excellence the raw materials for the plastic industry. The Committee should review this question very deeply and extend their consideration not only to benzole but to recovery of all the by-products.

QUESTIONNAIRE II

Question 1

Answer.—In my opinion nothing short of nationalisation can possibly solve the multiple problems facing the coal industry. The Central Government should now enact legislation to vest in itself the complete power to regulate the mines and mineral development and to control the production and distribution of such minerals. I do not think that partial measures would meet with any success.

Question 2

Answer.—There should be a Ministry of Fuel, Minerals and Power and the Minister in charge should be a Member of His Excellency the Viceroy's Executive Council. He should be assisted by a team of scientific experts.

Question 5

Answer.—Alliance between units of coal production and consuming interests, whether through ownership or otherwise, has been an unhealthy factor in the economics of Indian coal industry. Although theoretically this should lead to a better and more complete understanding between the industry and the consumer, in the past it has often led to cut-throat competition. Some consuming interests who were at the same time owners of mines have artificially brought down the selling prices of their product in order to bring down the general price level of the market. The lowering of prices in turn led to wasteful mining methods and to reckless exploitation of the national coal resources.

Question 6

Answer.—What has been said regarding question 5, applies to the railways.

Question 8

Answer.—I do not think that administration by the State of coal-bearing properties on behalf of the owners is an adequate solution. It would lead to corruption and to continuous quarrel between the State and mine owners.

Question 9

Answer.—There should be complete nationalisation of coal and other mineral resources.

Question 10

Answer.—There should be complete State ownership as well as operation by the State, although the distribution within zones may be left to private organisations for the present.

Question 11

Answer.—It is certainly true that a large number of concerns are undercapitalised, but I cannot suggest that they should be financed by loans either on terms of payment of interest or on interest free basis, as in most of these cases management is hopelessly inefficient and investment of public funds in these concerns would mean a total loss. All these concerns ought to be acquired immediately by the State and put on a proper footing.

Question 14

Answer.—The surest way of improving the output of Indian coal-mining labour is to introduce machine-cutting and to have a stable miner class in the country.

Question 15

Answer.—Although the system of raising contractors have tended to improve output, it has certainly resulted in unsystematic mining methods.

Question 16

Answer.—The deficit of the six million tons between the coal requirements of the country and the present productions can only be met by increasing the supply of labour for the mines introducing machine-cutting, opening the mines containing more inferior types of coal and by working to some extent the outcrop coal.

Question 17

Answer.—In my opinion no voluntary Central Marketing Agency for coal would be feasible. Government should be the sole distributing agency and the Controller of sales. Sales quotas cannot be fixed privately by the trade. It will be better to have several regional groupings under a Central Authority.

Question 18

Answer.—At the moment no comprehensive regulation for using coals for different purposes can be formulated as no sound data exist on the nature of Indian coal and their suitability for various purposes. Before any such regulation is enforced, a complete Physical and Chemical Survey of the Indian seams must be completed and experiments must be carried out on the suitability of the various types of coal for different purposes.

Question 19

Answer.—Regulation of the use of coals by some of the major consumers would certainly be beneficial towards the better utilisation and conservation of Indian coal, but this will only be a patch work solution.

Question 20

Answer.—In the event of complete regulation, the Central Marketing Agency may ensure the correct supply of coal with the help of expert advice and analytical data from the Fuel Research Station. In this connection it may be pointed out that sooner or later the Central Fuel Research Institute will have to establish sub-stations for Physical and Chemical Survey in different coal-fields and these survey stations may facilitate to ensure correct supply of coal from any colliery from their respective regions. It may be pointed out that the Fuel Research Station in England has got 9 survey stations established in separate coalfields and during the war years, the Ministry of Fuel and Power completely relied on these survey stations for the despatch and control of different qualities of coal and it can be stated that the scheme was considered to be a great success.

Question 23

Answer.—Pooling of railway freights would not be a bad idea.

Question 29

Answer.—Return to free competition in coal industry is certainly most undesirable. Voluntary price fixation would never work out in practice. It is hardly likely that either the Colliery Owners' Association by themselves or in consultation with the consumers can cater for or have complete grasp of the needs of post-war reconstructions. Only the Central Government, responsible for the planning and execution of the post-war reconstruction would be in a position to obtain complete information or the needs of the country.

Question 30

Answer.—I think a complete control would be better than have partial control of the Railways and the Steel Companies. The price of coal should be based on its calorific value and there should be a sliding scale arrangement or a system of bonus or penalty on delivery. It must also take into account the size of coal, and for several purposes, fusibility of ash and other special criteria which can only be specified with reference to specific purposes.

Question 31

Answer.—It is difficult to define a metallurgical coal very precisely. There are several properties which are generally taken into account, viz. ash content, strength of the coke, size, the reactivity of coke, swelling index, presence of impurities e.g. sulphur, phosphorus etc. In general metallurgical coal is that coal which produces a suitable blast furnace coke with necessary cohesion to withstand the blast in the furnace and possesses a definite ash limit in relation to the nature of the ore being smelted. In India it is said that ironmasters aim at having a coke with 18 to 20 per cent of ash. This is chiefly due to the fact that most of the iron ores used in India are high pure.

Question 43

Answer.—The actual requirements of coking coal of the type that are being marketed today can certainly be reduced to $\frac{1}{2}$ by taking resort to blending with non-coking coal or by washing of the coal from seams which are at present regarded as unsuitable for metallurgical purposes due to their higher ash percentages.

Although some work has been started under the aegis of the Council of Scientific and Industrial Research on these lines, for example, investigation on blending at Jamshedpur and on washability at the Indian School of Mines, very little work has been done in this country in actual practice. There is therefore need for complete and thorough investigation on laboratory and on industrial scale.

Question 44

Answer.—I think that given enough encouragement and incentive, expert advice available in the country can ensure economic use of coal in iron and steel works.

Question 45

Answer.—It is now a common place knowledge that at the present rate of consumption India possesses only about another 50 years of reserve of metallurgical coal and unless other alternatives are discovered and put into actual practice, there is every reason to restrict the use of metallurgical coal to iron and steel industry and ensure conservation by introducing blending and washing.

Question 46

Answer.—Yes.

Question 47

Answer.—By limiting production and ensuring that only that amount of coal needed by the metallurgical industry is actually produced.

Question 48

Answer.—There is reason to believe that iron and steel industry would expand considerably in the near future, which would partially ameliorate the difficult situation that will be faced by some of the mines producing metallurgical coal. In some of these mines depillaring should be prohibited to restrict their output, but I think the problem can only be adequately dealt on a national basis and under State ownership.

Question 49

Answer.—In view of the precarious situation regarding the reserves of metallurgical coal, it is certainly desirable that the State should own and operate all mines producing this type of coal.

It should be pointed out that fire and collapses in seams either in the neighbourhood or below some of the metallurgical seams are causing grave losses which have hardly been taken into account when the life of the metallurgical coal reserves are estimated.

There is need of immediate steps being taken to ensure that the future industrialisation of the country may not be held up in this bottle-neck.

Statutory restrictions in mining or use of coal would merely create confusion and there will be a set of problems which can only be solved by outright acquisition of such properties by the State.

Question 50

Answer.—In India high grade steam coal is considered to have an ash percentage below say 12 per cent. and having free burning qualities. According to the report of the Geological Survey of India the good reserves of high grade steam coal do not amount to more than 5000 million tons of which about 1400 million tons are considered to be of coking quality.

Question 51

Answer.—While one cannot say that there has been widespread wastage of high grade steam coal in the country, it is true that they have not always been utilised for best purposes. Much of these so-called high grade coals are suitable for Low Temperature Carbonisation. It is known in some cases that such coal has been used for making domestic soft coke by the open heap process without any recovery of by-product.

Question 52

Answer.—Without having any Physical and Chemical Survey data it is difficult to restrict the use of high grade steam coal for any particular purpose and until such data are available for consideration, I do not think there should be any particular restriction about its use.

Question 53

Answer.—For solution of multiple problems which the coal industry presents I would favour outright State ownership of all coal deposits of the country. The need of State ownership of high grade steam coals can be justified from the mining point of view. There are many collieries where the most efficient and maximum extraction in consistence with safety has not been adopted in the past and such reckless exploitation has led to loss of large reserves of coal. I would therefore recommend State ownership for high grade steam coal as well.

Question 54

Answer.—The present percentage of extraction of coal in India is about 50 per cent. There has been considerable improvement in places where stowing has been adopted particularly in the case of thick seams.

Question 55

Answer.—Without introduction of compulsory sand stowing I do not think that regulations regarding first working, section working and depil-laring will be adequate for securing maximum extraction of coal.

Question 57

Answer.—Stowing should be enforced both for safety and for conservation purposes. It should be applied in all cases and specially in the

case of thick seams and when a seam being worked underlies a seam that is not being worked.

Question 58

Answer.—The Government should acquire sand rights and should deliver sand for stowing.

Question 61

Answer.—Efficiency and economy can certainly be obtained by using pulverized coal and colloidal fuel. I think the most economic way of using the inferior grades of coal is to use them in pulverized state. Colloidal fuel i.e., coal dust in suspension in oil, certainly presents greater advantages than either fuel or oil as such. As far as I am aware there has been no development in these matters in India.

Before any action is taken experimental work must be carried out on the use of Indian coal in pulverized form. Researches therefore should be undertaken at an early date for this purpose.

The Government should consider the use of pulverized fuel, in conjunction with the use of inferior grade fuels for large central power stations that may be built in the country. Either the unit type or the bin and feeder type of plant may be adopted but in my opinion the unit type has certain advantages. The writer recently visited a large power station at Kikstall near Leeds and was impressed by the efficiency obtained from pulverized fuel firing. Coals far inferior than anything that is used in any other power station in the United Kingdom was used in the station.

Regarding colloidal fuel it may be stated that until recovery of oil from coal tar is started there is hardly any chance of success in adopting this type of fuel in India, as the best medium of suspension of coal dust is coal tar oil. The coal required for this purpose should be of as low ash content as possible.

Question 62

Answer.—This has already been dealt with in answer to question 61. I think establishment of Central Power Station in the coalfields for supplying electricity to Calcutta and electrification of the rail roads converging on Calcutta would certainly effect a very great economy in transportation of coal and contribute to the utilisation of inferior grade fuels, thus conserving high grade steam coal.

Question 63

Answer.—We should decidedly stop the present method of producing soft coke and adopt Low Temperature Carbonisation in conjunction with by-product recovery. But before this can be done there must be a thorough laboratory survey in order to find out the suitable coals for this process of carbonisation and also to carry out full-scale experiments to determine the nature and yield of the solid, liquid and gaseous products. The programme of research should occupy a very high place in the programme of the proposed Fuel Research Institute.

Question 64

Answer.—There is certainly a very special case for developing the coal tar industry in India. Coal tar products are raw materials for many heavy and fine chemical industries. This has been dealt with by various people at length and there is hardly any need reiterating them. This is especially necessary in connection with the development of the plastics, dye-stuff, synthetic-rubber and allied industries, for the manufacture of germicides, insecticides and a great number of medical preparations. Development of coal tar industry will also help to a great extent in making the coal industry profitable and prosperous. One may state that the most uneconomical use of coal is to burn it.

On the coal tar industry depend the power of the country to wage war or achieve prosperity in peace.

Question 72

Answer.—The coal resources of C. P. are still rather vaguely known. Even recently two new seams (one 7' ft. and another 11' ft. in thickness) have been discovered near Nagpur City. These seams were not even suspected in the pre-war years. Very little deep boring has been done in connection with our coalfield survey. Although the C. P. seams may not prove to be of very high grade, they would certainly augment country's reserves of fuel resources. There is also the case

of recent discovery of a fairly large deposit of lignite in South Arcot, near Madras.

Use of deep boring should be encouraged for prospecting of the coalfields, particularly in the Central Provinces.

Question 73

Answer.—I think it is unwise and very often wasteful to have a number of cesses for different objects and the alternative is to have single cess on coal and then to distribute the levy for various purposes, e. g., labour welfare work, research, stowing etc. according to need. Subsidies however should not be met out of this Central Fund.

Question 74

Answer.—I certainly think that a single body, exercising the functions of various committees and trades now functioning will be more advantageous. The existence of separate committees tend to lead to confusion regarding general policies. Policies of these organisations have very often been directly or indirectly contradictory. Further, any such single body should have enough technical representation on them and the executive authority should consist of paid whole-time personnel. The industry, technical and research organisations, Mines and Stowing Deppts. Labour Department and Finance Department should be invited to send their representatives to this Central Coal Commission.

ORAL EVIDENCE OF DR. A. LAHIRI, ASSISTANT DIRECTOR, FUEL RESEARCH INSTITUTE

Question.—We have been told by several other witnesses that the present method of grading coal in India is not only archaic but also does not bear any comparison with the methods adopted in other countries. What are your views on this?

Answer.—I agree with that criticism.

Question.—*Question 8.* You have referred to a sliding scale of prices according to utility. Could you elaborate that point?

Answer.—You may have a system of bonus and penalties. There may be a sliding scale on the ash content or calorific value or on both. There should also be a scale for special qualities e.g. sizing for specialised work. Supposing you require $\frac{1}{2}$ "— $\frac{1}{4}$ " for a particular type of boiler and you receive 4" and above. That means extra expense and inconvenience. The supplier should be penalised in such a case.

Question.—Do you think it is practical to work it up, i.e., not only every aspect of the coal, every size of coal, but for every type of consumer? I will only look at it from the practical point of view.

Answer.—It can be done for types of coal for which there is wide use.

Question.—Do you know any country where it is worked?

Answer.—Unofficially it is practised in England in the matter of price.

Question.—Perhaps that has something to do with long-standing contracts?

Answer.—Perhaps so. The matter is still under consideration. There is no official scale. In the Coal Conference held in London in 1943, this matter was widely debated. No body appeared to agree to anything more than fixing a sliding scale of prices on ash and calorific value for each size of coal. The point about melting point of ash should also be borne in mind.

Question.—*Question 24.* You have suggested that machine cutting would raise ash percentage of the coal "as mined". On what reasons have you arrived at that?

Answer.—In machine-mining practice during drilling, blasting and machine loading shale bands and stones cannot be picked as these become too inextricably mixed up to be hand-picked. In some of the Wales mines where the average inherent ash of coal ranged between 5 and 7%, the coal as raised by machine-mining contained 26 to 28 % of ash. This is why coal washing plants have been invariably used with machine cutting, unless the seam was particularly free from shale bands.

Question.—*Question 34.* You have stated that there is the possibility of producing coke from so-called non-coking coal by briquetting under pressure and under elevated temperatures.

Answer.—Yes. Coal is a naturally occurring plastic material. The coking and non-coking coals may be likened to thermo-plastic and thermo-setting resins. Besides other things, coking phenomenon is dependant on the internal surface of coal i.e., lower the internal surface the better is the chance of coking. Experiments were carried out by Prof. Swietoslowsky in Poland in the Department of Physical Chemistry. Warsaw University, which showed that briquetting of non-coking coal at elevated temperatures and under pressure yielded a product which could produce good coke. The experiments have been published in "Physico-Chemical Methods of Coke Formation" (Polish Association in America 1942-43).

Question.—On the following page of your reply, you have stated that it is possible to recover a percentage of coking coal out of a seam of non-coking coal by gravity separation method. Could you elaborate?

Answer.—Yes. This depends, of course, on the nature of the seam. Experiments carried out at the Fuel Research Institute of South Africa showed that with the Whitebank coal, which is as a whole non-coking, 20% of coking coal could be recovered by floating the coal at 1.35 sp. gr. In some cases the lighter fraction of coal can be used for coking.

Question.—In respect of carbonisation what are the relative merits and demerits, in your opinion, of high temperature and low temperature carbonisation? If you want to develop the bye-product industry in this country to which process should attention be given?

Answer.—The bye-product from these two processes are different and therefore they cannot be compared. We need both. The high temperature carbonisation yields benzene and its homologues which are raw materials for large number of synthetic chemical industries. The low temperature process yields substances of a different nature which provides good fuel for I. C. engines, fuel oil, higher phenols and tar acids, etc.

Question.—What is the relation between the cost of carbonisation and the cost of selling prices of bye-products, etc.?

Answer.—In my opinion low temperature carbonisation would be an economic proposition if the coke produced can be sold at a price which will pay for the coal carbonised.

Question.—Could you tell us about the experience of other countries in the matter of low temperature carbonisation? My information is that in England and America it has not been commercially successful.

Answer.—The position in India cannot readily be compared with that of England and America. In India, unlike in the other countries there is a ready market for soft coke. The soft coke in India is used for domestic cooking, whereas in the European countries and in America, its chief domestic use is in heating *i.e.*, in its use in fire places. There is a psychological prejudice against the use of coke in the fire place in preference to coal which burns with a flame and appears more cheerful. Nevertheless, the Coalite process in England has been very successful. There is great demand for the coke in the cities *e.g.* London and they cannot produce enough of it. The bye-products are recovered and extensive fractionation carried out. The products are sold at good prices. Some of them, *e. g.* cresylic acid, are exported to America.

The Coalite plant uses coking coal but has to be blended with other coals and coke breeze.

Another plant, which has been tried out commercially and has proved successful, is the Narrow Brick Retort designed by the Fuel Research Station of Great Britain. In this plant, about 8 tons of coal is carbonised per retort in 24 hours and it uses medium or Weakly coking coals. The process is continuous and yields rich gas.

A third plant owned by National Carbonisation Ltd., which is economical to erect and operate, has been working for some years on a semi-industrial scale in the Midlands. This is an intermittent process and carbonizes about 33 tons of coal per retort in 24 hours. This process also requires sized, medium or weakly coking coal. Unlike the Narrow Brick Retort, these retorts are internally heated.

Question.—Is this a war-time development?

Answer.—No. As a matter of fact the war has hindered the development of the low temperature carbonization process in England, chiefly due to shortage of coal. This however did not affect the Coalite plants as the Government required its valuable bye-products.

Question.—You state that the low temperature carbonisation industry really depends on the economics of working and a rough and ready method you suggested was that if the coke produced could be sold for the cost of the coal then, of course, it will be a paying industry. Would you look at the problem from another angle?

If the bye-products can bring in considerable amount of return, then the residual coal might be treated as a bye-product?

Answer.—This can be possible only in a country where there is a great demand for the bye-products. Practically however this would not work. The coke produced is after all 65 to 70% of the product and unless there is a good market for this, the process would not pay.

I may add that quite a lot of public money has been squandered abroad in developing low temperature carbonization process. Most of them

were successful on small scale experiments but met with invariable failure when tried on an industrial scale. These were chiefly due to unsound design but sometimes, to fraud.

Question.—Have you any information regarding the de-sulphurisation of the Assam or the Punjab coals tertiary deposits?

Answer.—I believe that the Committee are aware that some research on this subject is being carried out under the aegis of the Fuel Research Committee of the Board of Scientific and Industrial Research. The laboratory results are promising and arrangements are being made to carry out pilot plant scale experiments. De-sulphurisation could be effected with various substances but their nature prevents their use in coke ovens. Treatment with ammonia gas at high temperatures appears to be most promising but nothing can be definitely said unless further experiments are carried out.

Question.—You have stated that regulation of the use of coal would certainly be beneficial, but this will only be a patchwork solution. Is it your suggestion that until we have a complete physical and chemical survey of Indian coals, regulation of the use of coal cannot be done properly?

Answer.—Yes.

Question.—You have stated that in India iron masters aim at having a coke with 18 to 20 per cent ash and that this is chiefly due to the fact that most of the iron ores used in India are high grade. This view is contested by the steel industry. They say that the quality of iron ore has very little influence on the output of coke they want. Coke serves an entirely different purpose in the Blast Furnace.

Answer.—May I refer the Committee to a paper read before the Institute of Mining and Metallurgy in 1936 by Keerl who was the coke oven manager of the Tata Iron and Steel Co. Ltd. He caused a stir by emphasising that they did not want very low ash coal for, as the ore was very pure—other inert materials had to be added for fluxing and to obtain de-sulphurisation of the pig-iron. He was more concerned with the nature and uniformity of ash content rather than the percentage. I believe nothing has happened to invalidate the thesis of this paper.

Question.—You have given us a valuable note regarding the Fuel Research Institute. I take it that it is your view that the proposed Fuel Research Institute as designed and as sanctioned to-day will not be able to carry out any very complete survey of the physical and chemical properties of the various types of coal in this country within a reasonably short period?

Answer.—Yes, that is my considered opinion. The funds provided for the establishment of the Institute are just enough for building construction and installation of ordinary laboratory equipment. No funds are available for pilot plant construction.

A preliminary physical and chemical survey of the seams is a prerequisite of research but this must be carried out within a reasonable period. For this field stations for carrying out routine analysis on the spot are required and no funds are available for that.

Question.—What was your estimate of the requirement for having all these pilot plants?

Answer.—About Rs. 15 lakhs in the first instance are required for installation of pilot plants only. I have submitted to you a separate note embodying a 5-year scheme for preliminary survey of the Indian coalfields to which you may refer for extra finance necessary on this account.

Question.—Suppose we confine our attention to one field only—Jharia field coking coal measures. Is it possible for you to say off hand what sort of expenditure will have to be incurred?

Answer.—I have given the estimates field by field in my note just referred to, but if you are interested in conserving coking coal, say by blending, then a survey both of coking and the non-coking coals is necessary. A simultaneous survey of all the major fields should be taken in hand.

Question.—You have also mentioned somewhere in your Memorandum that by suitable washing, cleaning of some coal and blending of other coals with the pure mother-coal it is possible

to reduce our consumption of metallurgical coal by 50 per cent.

Answer.—Yes, in many cases. But this refers to foreign coals. Data on Indian coal is not extensive but work has been taken in hand under the joint auspices of the Tata Iron & Steel Co. Ltd. and the Fuel Research Committee of the Board of Scientific and Industrial Research. In some cases the coke can be improved by suitable blending.

Question.—But we have been informed by the Tata Iron & Steel Coy. that their impression from the experiments done so far is that they can only use about 10 per cent.

Answer.—Yes, but the data available and the nature of tests carried out does not warrant any sweeping statement.

Question.—There has been a great deal of talk about thermal stations in the coalfields for the use of low grade coals. What particular type of coal—what ash content—would be needed?

Answer.—The ash limit can be extended upto 30 to 35 per cent, if pulverized coal is used. Any coal, especially high volatile and free burning coal would be suitable provided it is used in pulverized form. A higher ash content would shorten the life of pulverizing and the firing equipment.



NOTE ON A FIVE YEAR PLAN FOR PRELIMINARY PHYSICAL & CHEMICAL SURVEY OF INDIAN COAL RESOURCES.

By Dr. A. Lahiri

The latest pre-war survey estimates the total coal reserves of India at about 65,000 million tons, of which about 22,000 million tons are considered to be workable at present. According to the same source the reserves of good quality coal however does not exceed 5,000 million tons of which only about 1,400 million tons are said to be of the coking quality.

Our present annual output of all kinds of coal is in the neighbourhood of 25 million tons, of which about a third is consumed by the Railways, a fourth for metallurgical, a tenth for domestic and the rest for other miscellaneous purposes and export. About 13 million tons of coal of the total production is of the coking quality of which only 4 million tons are actually being used for metallurgical purposes.

It has been pointed out that the life of the coking coal reserves in India is limited and at the present rate of waste in mining and consumption, the reserve will not last more than fifty years unless intensive planning and research is adopted.

Good quality coal of high volatile content and having special uses *e.g.* carbonisation, by-product manufacture, manufacture of plastics, dyes and chemicals, hydrogenation etc. also require special attention. Rational utilisation of these coals can only be based on the thorough knowledge of their properties, obtained from intensive scientific research. No researches can however be planned unless at least some preliminary Physical and Chemical Survey data on these coals are available.

If we accept the above position regarding the reserve of Indian coal and its implications, it is clear that we shall have to adopt very thorough planning measures in matters of conservation, utilisation and benefaction of Indian coal resources. It would appear that our ability for conserving and utilising better grades of coal, especially those of the coking quality, would ultimately depend on the benefaction of the more inferior types of coal. This can only be achieved through scientific research.

It is admitted, however, that much of the speculations on Indian coal reserves are based on slender evidences. The available existing data on Indian coal are also not based on sound scientific lines and therefore no systematic planning of industrial or scientific research is possible until we possess at least a fairly complete preliminary survey on physical and chemical properties of our major coal resources. This preliminary survey must be the basis of the long term planning of scientific and industrial research on coal as well as of reorganisation of the coal industry.

Any planning and reorganisation either of the coal industry or of scientific research on coal at present will be rendered rather speculative and unsystematic due to paucity of such data.

From what has been said above, it will be evident that a preliminary Physical and Chemical Survey of India coal resources is an urgent and immediate necessity, for without this intelligent planning either of research or of industry would not be possible.

As a detailed survey would take considerable time, it is suggested that a preliminary survey based on 'rip-survey' method of collection of samples of coal should be adopted, making detailed survey only where it may be considered necessary, in the first instance.

The data that should be collected from the preliminary Physical and Chemical Survey, in my opinion, are as follows :—

- (1) Proximate analysis
- (2) Coking properties
- (3) Total sulphur
- (4) Calorific value
- (5) Determination of carbon & hydrogen contents
- (6) Washability
- (7) Reserves.

The detailed survey should include the following properties over and above the data obtained from the preliminary survey :—

- (1) Distribution of sulphur
- (2) Phosphorus in ash
- (3) Composition of ash
- (4) Total chlorine
- (5) Complete ultimate analysis
- (6) Complete Low and High Temperature Assay (Gray-King)
- (7) Agglutinating index
- (8) Swelling index
- (9) Fusion point of ash in reducing and oxidising atmosphere
- (10) Deterioration of coking coals on storage and weatherings
- (11) Rare element content of coal in specific cases.

The preliminary survey should have a definite time limit, say 5 years, as has been suggested by the Coalfields Committee and should be confined to the Jharia, Ramganj and Bokharo-Ramgarh-Karanpura fields in the first instance, as these are at present the major coal producing areas.

In the plan for the establishment of the Fuel Research Institute of India (C. S. I. R.) at Dhanbad no provision is made for outlying survey stations due to paucity of funds. The Headquarters staff for the Physical and Chemical Survey of coal is also reduced below the absolute minimum due to the same reason, and it was

assumed that as all the activities of the Institute would not be started simultaneously, staff could be diverted from other sections to the survey section during the initial years.

A more satisfactory arrangement for the Physical and Chemical Survey would be to follow the lines of the Fuel Research Board (U.K.) who, although they have their headquarters for research in London, have established NINE outlying stations only for the Physical and Chemical Survey of British coal-fields. In our case since the research headquarters are to be situated in the heart of one of the major produc-

ing coalfields viz. Jharia, the survey station for the upper field can be combined with the Research Institute itself, whilst at least two outstations should be established in the down field (Raniganj area) and in Bokharo-Ramgarh-Karanpura area. Later it will be necessary to have an outstation in C. P. coalfields as well.

The following is a tentative estimate for expenses and staff requirements for carrying out a Physical and Chemical Survey of the Jharia, Raniganj and Bokharo-Ramgarh-Kharanpura coalfields in 5 years :—

CAPITAL EXPENDITURE

1. Jharia Field—		Rs.	3. Bokharo—Ramgarh—Karanpura Field—		Rs.
(a) Buildings (incorporated in the Fuel Research Station)		Nil	(a) Buildings (Rents, fittings with gas, water and furniture, etc.)		30,000
(b) Extra equipment on Headquarters' establishment		20,000	(b) Equipment (Chemicals, apparatus etc.)		40,000
(c) Extra contingency and stores on Headquarters' establishment		20,000	(c) Contingency and Stores		20,000
		40,000			90,000
2. Raniganj Field—			The total capital expenditure under the three fields above is as follows :—		
(a) Buildings (Rents, fittings with gas, water and furniture, etc.)		60,000	Buildings		90,000
(b) Equipment (Chemicals, apparatus etc.)		45,000	Equipment etc.		1,05,000
(c) Contingency & stores		20,000	Contingency and stores etc.		60,000
		1,25,000	Total Capital Expenditure		2,55,000

RECURRING EXPENDITURE

1. Jharia Field (Fuel Research Station Headquarters).

(Total approximate reserves of coal of all kinds 4,537 Million tons)

Post	No.	Grade Rs.	Total Annual salary for the 1st year Rs.
Assistant Director	1	600—25—650—35—1000—50—1200—100—1500	7,200
Senior Scientific Officer (1 Chemist & 1 Geologist)	2	350—25—550—30—700	8,400
Junior Scientific Officer (2 Geologists and 2 Chemists)	4	250—25—400—450—450—500	12,000
Scientific Assistant (4 Geologists & 6 Chemists)	10	150—20—450	18,000
Laboratory Assistant	4	60—5—90	2,880
Draftsman	1	60—5—90	720
Junior Clerks	2	80—5—150	1,920
Peons, Orderlies, Labourers, Gasmen, Attendants etc.	25	15—1—20	4,500
			55,620
Add Provident Fund and Travelling Allowances @20%			11,124
			66,744
Add stores, chemicals, apparatus etc.			20,000
			86,744

2. Raniganj Field—

(Total approximate reserves of coal of all kinds 9,358 Million tons)

	No.	Grade Rs.	Total Annual salary for the 1st year Rs.
Senior Scientific Officer (Chemist)	1	350—25—550—30—700	4,200
Junior Scientific Officer (1 Chemist & 1 Geologist)	2	250—25—400—450—450—500	6,000
Scientific Assistant (3 Chemists & 3 Geological Assistants)	■	150—20—540	10,800
Laboratory Assistant	2	60—5—90	1,440
Draftsman	1	60—5—90	720
Junior Clerks	1	80—5—150	960
Peons, Orderlies, Labourers, Gasmen, Attendants etc.	20	15—1—20	3,600
			27,720
Add Provident Fund & Travelling Allowances @20%			5,544
			93,264
Add stores, chemicals, apparatus etc.			20,000

3. *Bothara—Ramgarh—Karanpura Field*

53,264

(Total approximate reserves of coal of all kinds)

11,755 Million tons)

Post	No.	Grade	Total Annual salary for the 1st year
		Rs.	Ra.
Senior Scientific Officer (Chemist)	1	350—25—550—30—700	4,200
Junior Scientific Officer (1 Chemist & 1 Geologist)	2	250—25—400—450—450—500	6,000
Scientific Assistant (2 Chemists & 2 Geologists)	4	150—20—450	7,200
Junior Clerk	1	50—5—150	96
Laboratory Assistant	2	60—5—90	1,440
Draftsman	1	60—5—90	720
Peons, Orderlies, Labourers, Gasman, Attendants etc.	10	15—1—20	1,800
			22,320
Add Provident Fund and Travelling Allowances @20%			4,464
			26,784
Add stores, chemicals, apparatus etc.			20,000
			46,784
The total recurring expenditure under the three fields is as follows:—			
Salary of staff			1,05,660
T. A. & Provident Fund			21,132
Stores, chemical, apparatus etc.			60,000
Total Annual Recurring Expenditure			1,86,792

TOTAL REQUIREMENTS OF TECHNICAL STAFF FOR PHYSICAL AND CHEMICAL SURVEY

Revised plan as suggested in the present note.

***Original Plan as provided for in the Report for the establishment of the Fuel Research Station in the first year.

Post	No.	Post	No.
Assistant Director	1	Assistant Director	1
Senior Scientific Officer	4	Senior Scientific Officer	2
Junior Scientific Officer	8	Junior Scientific Officer	3
Scientific Assistant	20	Scientific Assistant	6
Laboratory Assistant	8	Laboratory Assistant	2
Present Plan		Ministerial Establishment staff* Fuel Research Station Plan	
Clerks	4	Clerks	0
Draftsman	3	Draftsman	0
Menials	55	Menials	0

***This very limited staff requirement was provided for in accordance with the total annual recurring grants sanctioned by the Governing Body of the Council of Scientific & Industrial Research for the Fuel Research Station.

*A limited number of the establishment staff to be utilised from the staff of the Headquarters establishment.

In the above note it has been assumed that buildings for the establishment of the outstations can be rented in the localities concerned and accommodation for the staff would also be available.

The staff requirements given here are the minimum if the survey has to be done systematically and within 5 years. On completion of the preliminary survey, the work of the survey stations can be switched over to detailed Physical and

Chemical Survey. The stations would then also be in a position to carry on the work as is being done at present by the Coal Grading Board and the Regional Coal Commissioner in collaboration with or under the Ministry of Fuel and Power. These survey stations could then become the medium through which control on the production, utilisation and distribution in the respective coal-fields could be exercised. It may be mentioned here that the outstations of the Fuel Research Station of the U. K. had similar functions during the war years in Britain and worked in collaboration with the Ministry of Fuel and Power. The arrangement proved to be highly satisfactory in spite of a very highly complicated system of specialised utilisation and zonal distribution scheme created by lowered production and transport shortage, and discussions are in progress to find how best this arrangement could be continued.

4. WRITTEN EVIDENCE SENT IN BY THE COAL GRADING BOARD, CALCUTTA

QUESTIONNAIRE I

II

GRADING & EXPORTS

Question 2.—Notwithstanding the fact that coal will be required in increased quantities to meet Industrial Developments in India, it is considered that a certain amount of coal must be exported to Burma, Ceylon, the State Settlements and Hongkong, as these countries have practically no coal resources of their own wherewith to meet their requirements and naturally look upon India for their coal supplies.

No special measures are necessary for pushing Indian coal in foreign markets and the matter should be left in the hands of the Trade. The export of this coal is a necessary adjunct for maintaining Indian Overseas Trade.

Question 3.—The activities of the Coal Grading Board have led to an improvement in the quality of export coal and the opinions expressed by some of the various Chambers are given below :—

CHAMBERS OF COMMERCE

1. *Burma.*—A very large number of user of Bengal Coal state that there has been marked improvement in the quality of Begal coal supplies since the Board came into existence.

2. *Singapore.*—The system of Shipment Certificate and the supervision of the Board have given satisfactory results.

3. *Hongkong.*—The coal received from India is found to be highly satisfactory in every way.

4. *Northern India.*—In the opinion of the Chamber, the Board is fulfilling an important function in a most efficient manner.

5. *Indian Merchants.*—Bombay—Members write that the Board has done much to ensure confidence in Shipment of Indian coals but suggest certain modifications in the Shipment Grade Certificate and in the methods of Survey of cargoes.

6 *Karachi.*—One member writes—“The Coal Grading-Board has proved a great success so far as the export trade is concerned and the complaints for quality and size which were universally present before the establishment of the Coal Grading have been extremely rare since its establishment.

7. *Ceylon.*—Coal shipped to Ceylon consumers under aegis of the Board has, generally speaking been very even, of good appearance and quality and has given satisfaction.

8. *Bombay.*—Buyers have been pleased with the arrangements made by the Board for grading coal for shipment.

Question No. 4.—Data not available in the Grading Board office.

Question No. 5.—The grant of special rebate of -/8/-as. per ton on export coal has materially done good for the Coal Trade as this concession helped Indian coal to compete with South African coal.

Question No. 6.—Average rail freights are given below :—

Station to	From					
	Collieries served by					
	B. N. R.			E. I. Ry.		
	(per ton)					
	Rs.	A.	P.	Rs.	A.	P.
Madras]	13	0	10	13	15	0
Bombay	14	13	7	14	13	7
Karachi	17	10	1	17	1	6

NOTE—The figures do not include surcharges and cesses.

It is understood that the pre-war sea freights from Calcutta to the following ports were as follows :—

Madras	Rs.	0	0	0	Per ton
Bombay	..	12	0	0	..
Karachi	..	12	0	0	..

Question No. 7.—Re-grading is considered necessary and the Coal Grading Board should undertake this work, but the re-grading should be left to the discretion of the Coal Grading Board.

It will, for commercial use, always be necessary to confine the grading to the Section or Sections of the seam worked. Grading of the full section of the seam where practicable is desirable and could be undertaken by the Coal Grading Board as and when required either by the owner or under the direction of Government.

Question No. 8.—The Grading of coal under the existing Coal Grading Board Act is voluntary and should be allowed to continue. Grading for the internal market should be left to the Trade to decide.

Question No. 9.—This should be left for the Coal Trade to express an opinion.

QUESTIONNAIRE No. II

Question No. 11.—The functions of the Coal Grading Board are very different from those of the Soft Coke Cess Committee and the Coal Mines Stowing Board. It is considered that it will not be advantageous to have one single body for 3 such diverse interests.

5. ORAL EVIDENCE OF THE HON'BLE MR. H. C. PRIOR, REPRESENTING THIS DEPARTMENT OF WORKS, MINES & POWER.

FUTURE MINERAL POLICY AND ADMINISTRATIVE ARRANGEMENTS

Question.—On the question of a Mineral Policy for India. We should like to know about the principles of such a Policy and the machinery you have in view to carry it out.

Answer.—The policy falls into two parts: *First* is the considerable development of the Geological Survey for ascertainment and mapping of the mineral deposits of India. We propose to carry their duties little bit further than has been done in the past and set up in the survey a small Engineering Branch capable of carrying out certain drilling work to prove the existence and to some degree the extent of whatever mineral the geological map has indicated the probability.

This is part of the legitimate function of the Geological Survey as it extends more to :—

(1) showing that the mineral deposit is there and

(2) producing samples of the mineral deposits which will go to the Metallurgical Survey for investigation.

The *second* part is a function which the Centre has not so far taken up and is covered by item No. 36 of list I of the 7th Schedule of the Government of India Act. It involves taking power by Federal law to bring under Federal Control to the extent indicated in the legislation certain minerals of key importance. Policy will however not only be based on the statutory function and the control given by the Legislation if, as we propose, it materialises, but will also include an Advisory organisation on which the Provincial Governments can call. Broadly speaking the organisation which will perhaps assume the name of Directorate General, Mineral Development, may have responsibilities under 4 or 5 heads :

(1) It will first have an organisation handling what we call the general minerals, which we propose to bring under Central Control, minerals of strategic importance (a list of which I will send you) and a number of minerals some of which it may also be found necessary to include, such as sulphur, gypsum, etc.

In regard to the control of such minerals the only powers that we propose to take to Centre are those which in our view it is absolutely necessary that the Centre should have for co-ordination purposes *viz.* power

- (a) to lay down conditions of leases,
- (b) to lay down conditions of working and
- (c) regulation of exports.

The Executive Authority in regard to the grant of leases will and must remain with the Provincial Governments. They are the people who must grant the leases. The only interest of the Centre in the matter is not a revenue interest, it is not an interest as to what particular person shall get the

leases, but it is the interest of co-ordinating the mining and control of those minerals, so that India can be assured of the conservation of minerals which we require in war and of their proper development, so that they can be won at the appropriate time.

(2) The second item is dealing with three particular minerals mentioned below—each of which should be dealt with in a separate branch of the directorate General—

- (a) oil
- (b) mica and
- (c) coal.

As regards oil, it is commonly held that all existing oil mines in India have already been leased out. That broadly speaking can be considered as possibly correct in regard to oil, the out-crops and signs of which appear at the surface; but it is not correct in regard to the oil in the underlying alluvial deposits. It may be that additional resources will be found; it may be that the alluvial oil will be found in permanently settled areas.

If oil is going to be found in permanently settled areas (the surface rights in which are owned by a number of owners), unless there is a co-ordinated policy, we shall reach complete chaos and confusion and inability to develop our oil resources in the best manner.

We do not think at the moment that our mining rules regarding oil are altogether satisfactory, and we are now in negotiation or discussion with the Provincial Governments and the oil industry in regard to the revision of our mining rules. The development of oil policy will possibly lead us to a suggestion for nationalisation of oil and, at any rate, of undeveloped oil. I think I might quite appropriately deal here with one or two questions, not a particular question which I have been asked to deal with, question 7 in your questionnaire II, *i.e.* regarding private ownership of mineral rights. Here I am going to quote my own ideas which have not yet been accepted by Government. I believe there is considerable force in the idea that mineral rights in the Permanently Settled areas should be acquired by Government. I do not believe that it was over the intention of the Permanent Settlement that the mineral rights underlying the land in the Permanently Settled areas were to be leased to the lessees and I do not believe that any lawyer could establish that mineral rights were leased to the lessees. I believe that owners of surface rights can establish that they have utilised their alleged rights in minerals and so have acquired a right by advance possession. I know that the Secretary of State said in 1870 or 1880 that he was not going to contest these rights. But I am by no means certain that that position should continue and I believe that it may well be necessary for a national Government here to frame legislation to provide that whatever may have happened in the past, the rights in minerals were not passed on by the Permanent Settlement

and that, in so far as advance possession has not come in, the Government now propose to exercise their rights in minerals.

Question: You mean undeveloped minerals ?

Answer: Yes. In the case of coal, coal that has not been worked or leased. I do not know a lot about the leases. By developed minerals, I mean the minerals that are known to exist under the land, deliberately leased as part of the property for exploitation. In the case of all others, I believe that State can re-assert its rights for them without payment of compensation or payment of purely nominal compensation. In regard to oil, I believe that State can re-assert its right to all oil underlying land which has not yet been developed, on which nobody has yet any rights ; it might be necessary to pay compensation, but if it was necessary to compensate that compensation should be purely nominal. A nominal sum of Rs. 10 per sq. mile as compensation in the Permanent Settled areas would not cost a great deal of money.

Question: You mean acquisition by the State of such properties which are being worked to-day ?

Answer: That is a different matter. In those cases we will have to pay proper compensation. In my view, we will lose if a suit is preferred against us.

Question: If conservation, or co-ordination or development requires it that the State should be the owner ?

Answer: Then if legislation is passed enacting that the State must be the owner of all mineral rights, I think the State would be forced to pay compensation in respect of existing worked leases.

Question: With your very large experience, do you consider that the State should become the owner of all ?

Answer: I will come to that later.

To go back to oil. I was saying that all oil underlying the land over which anybody has not yet got rights should be assumed by the State. I do not think that you can get an Oil Development Policy unless that is done. I believe that very considerable research is necessary in regard to the utilisation of our oils which may ultimately be discovered. And I believe that very considerable attention should be paid to working out proper leases for our oil property. Therefore, Oil Branch will have two sections. One will be dealing with oil products and their utilisation, whether imported or produced in India ; and the other will be dealing with the development of oil and the leasing of oil property in so far as oil is owned centrally and developed centrally. The development Branch for oil will, in so far as it continues to be developed under existing leases by the Provinces, be an advisory organisation strong enough to be able to give Provinces detailed advice. At present the Provinces grope in the dark.

Then Mica. Here again, we should take considerably more control over Mica than I would contemplate in the case of other minerals. The Mica Control should go to the extent of not only controlling leasing, but also controlling in some detail the actual working of the Mines. There should be a Director, Mica Development, working

on these details. I would also recommend that there should be considerable mica research to secure the best utilisation of mica products ; if possible, some measure of standardisation of splittings. (Such standardisation is opposed by the industry, unfortunately in my view) ; and certainly a proper development of the leases which has not been done so far. The Statistical and Administration Branch has got very much better information in respect of statistics of minerals production and their utilisation and also very much better information and advice on all matters concerning leases.

Question: What about coal ?

Answer: That must await the recommendations of the Committee.

Question: A few questions arising out of the statement.

Do I understand you correctly to say that if the Central Government take charge of control after having co-ordination and control over various minerals, they can do so after the Constitution. But if they do their part they should set up the Directorate General, Minerals Development, which will act as an Advisory body to the Provinces. You have emphasised the rights of the Provinces to accept revenue on the minerals.

Answer: No. Co-ordination should be secured partly by exercise of the Statutory duties of the Centre and partly by advice from a strong Advisory Body to the Provinces.

Question: You very strongly emphasise that the revenues should go to the Provinces on minerals. Have you ever thought as to the contributions which the Centre might expect from the Provinces for such Advisory duties ?

Answer: You are again touching on something on which I can only give a personal view. The cost of Directorate-General, Minerals Development, when set up, even if it is charged with responsibility for coal, is not likely to be as much as expenditure at present incurred by the Centre on coal. I do not believe that where you have number of Provinces and you use statutory powers under the constitution, there is any legitimate claim to any contribution from the Provincial Government for carrying out the statutory obligation, and I would strongly oppose any suggestion that Provinces should pay any part of the charges of works carried out by the Centre.

It is a part of my view that where the Central Government has, under the Constitution, arrived at an agreement with the Provinces for carrying out the function, it should be met from the Central Government. Otherwise you will never get the proper co-ordinating results.

Question: I appreciate the emphasis you lay on dividing the Provinces mineral wise. But are you convinced the co-ordination policy which you may lay down for expenditure of the respective provinces would be acceptable to the provinces ? Or will you be giving them loophole for determining their policy for different purposes ?

Answer: Where Central co-ordination of Provincial Mineral policy depends on Statutory authority, you can enforce their policy. But where statutory co-ordination is not essential for the mineral development of India and the Central

organisation is only an advisory body, the provinces will take their advice—the efficient advice of experts in the organisation—provided it is an expert organisation.

Question.—What I really had in my mind was not technical advice but in point of view of national policy on mineral development, that they might come to a decision on a certain undeveloped area say in Bihar, that it should not be developed for some time until the resources are reduced, who can cut in.

Answer.—I can see no method except by utilising the Central Statutory powers to acquire that part, with a view to essential working under Central management with payment of royalty to Provinces.

Question.—Will you take the argument a little further and consider the case of a certain mineral, i.e., a very important, strategic mineral when the Central or the Federal Government may come to a decision that the exploitation of this mineral might be very rigidly controlled and therefore all rights or persons dealing with that mineral should be acquired by the Centre.

Answer.—That is what I regard as a perfect policy. The question of practicability rests on questions of provincial and State sovereignty and such like.

Question.—Would you personally advocate?

Answer.—I would advocate that every Central policy designed to enforce any national policy whatever for conservation or otherwise should be Central and not Provincial and that the financial obligations should consequently be Central.

Question.—In regard to the place of the Geological Survey of India's future mineral policy and administration, am I correct in understanding that you do not propose the Geological Survey should go under the Director-General?

Answer.—No. It will remain under the Control of the Director Geological Survey. He and the Director-General Mineral Development are quite separate and essentially different—one is the discoverer, the other the exploiter.

Thus take the case of Zawar it might have been the function of the G.S.I. to drill and prove the existence of a deposit—that however would not have been much good—if none was required it became a prosecuting proposition and ultimately a mining proposition outside the purview of the G.S.I. but which could come within the purview of the Director-General of Mineral Development and his advice would be available to Provinces.

Question.—Do you envisage any close liaison between the Directorate-General of Mineral Development and the Geological Survey of India?

Answer.—Very close.

Question.—I assume both these sections will be under the same Ministry of Mines?

Answer.—Yes. As the mineral policy develops I am quite prepared to accept the proposition that there should be a separate department (a mines Department) but the G.S.I. and the mineral development organisation must in all circumstances be made one Department. But I do not necessarily say that that should be under a separate ministry. A separate Department means separate consideration but multiplication of Ministries has same weakness because not only have you got to get agreement at departmental level, but having got that you have then got to go again and get agreement at Ministerial level. If on the other hand you had, as we have now Mines, Mineral Development and Labour under one Minister, if there was any disagreement between the Mines and Mineral Development side and the Labour side, we can settle it at our minister's level.

Question.—You will rather multiply the numbers of secretariat and not multiplication of ministers.

Answer.—Multiplication of Departments under one member and the Member being able to co-ordinate rather than a Committee of Members, because I do not believe in Co-ordination in Committees.

Question.—You, because as you pointed out you were once Secretary and developed its staff in the wartime; can one Minister hold portfolios of Mines, Minerals, Power, Labour etc.?

Answer.—Clearly a ministry has not got to be over large. I believe in the theory that separate Departments can be small that one minister can manage more than one Department or should, but I do not think that you can have one Minister to handle the whole business of the Government. I think you want something like ten or twelve.

Question.—Your suggestion is, I think Mr. Prior, that at the ministerial level the load should not really be so big that he cannot direct policy of three or four Departments.

Answer.—That is right.

Question.—He should deal with general policy.

Answer.—and co-ordinate the general policy of the Department.

Question.—What I really had in mind was the position in cases of mineral like coal and Mica where national interests may demand not only acquisition of mineral rights but substantial extension of the operations by the State. Will that not be a very heavy administrative work involved in that, even if it is a small section of the Minister's portfolio?

Answer.—There is a fundamental difference between us. What *Ikramullah* has put is in my view the right one that the Minister having directed policy, provided that policy is being carried out, he should not be worried; if he wants to change his policy he should be able to get the advice of experts to change it. But he should not be worried over the daily administration of that policy, and if I can elaborate it.... coal is a mineral, coal is also a source of power. Power is

essential to the development of your mineral policy, to process your minerals on the spot. Power and minerals have got to be co-ordinated. Similarly power and waterways have got to be co-ordinated, because in the future a very large amount of our electrical power must come from water and if the best use of that water is to be secured, it must be connected with thermal power stations at the right places. Therefore to my mind you make a mistake if you separate those three matters, power, mines, mineral development and water development. But it may be impossible, if the general policy develops, for one Secretary to go on handling all those three. It is possible now but ultimately may not be—you can then have more than one Secretary but if you have three Ministers handling those three matters I think the difficulties of getting a co-ordinated policy will be very considerable.

Question.—Reverting back to your very lucid description of the proposed Directorate General of Mineral Development, what place do you give to the Mines Inspectorate as it is constituted today in that organisation?

Answer.—Safety in Mines must be the absolute responsibility of the Chief Inspector of Mines. I would not think of interfering with his responsibility for safety and policy must be worked out from that fundamental point. If you are going to have a statutory body and that body is going to have any functions in regard to safety—such functions can only be advisory and they should for that purpose be an Advisory Committee advising the Chief Inspector of Mines. The final authority must however be in the hands of one man responsible to one Department.

Question.—Labour Department?

Answer.—Well, there is a suggestion that certain functions of the Chief Inspector of Mines which are related to labour conditions should be with the Labour Department. I think it might be possible to separate those functions of the Chief Inspector of Mines from his statutory functions governing safety in mines. Or the Labour Department itself can have their own people to see that hours of work etc. are being followed and it need not necessarily be a function of the Chief Inspector of Mines to provide the actual inspectorate to see that the labour conditions are correctly followed. He will lay down the methods and conditions necessary from the safety angle.

Question.—The present Inspectorate of Mines has been entrusted by legislation to enforce working conditions in the mines with a view primarily to safeguard life and property. It may be that national interests may demand that the present Inspectorate of Mines should undertake that function also, not on account of safety but on account of conservation.

Answer.—I would not agree. I would prefer that the Chief Inspector of Mines should not undertake functions concerning development and conservation; that should be undertaken by your Development Commissioner who should be responsible for the conservation. In so far as that conservation is linked with safety the Development Commissioner should be bound to follow

the regulations laid down by the Chief Inspector of Mines as the safety authority. I do not think there will be any conflict between safety and conservation. There might however, be a conflict between safety and what one might call "legitimate robbing of pillars."

Question.—I am not thinking of any conflict. I am only thinking of the degree of emphasis on various mining methods.

Answer.—Emphasis must be on the safety and not on the maximum production.

Question.—Safety of what? Of property or life?

Answer.—Both. It is legitimate and necessary to take what steps you like for the safety of property. That cannot conflict with safety of life. But if in any case the extraction of property is a danger to the life of labour working underground, then the final authority must not be a production one but must be the officer charged with the responsibility for safety.

Question.—Would you divulge on the functions at present carried on by the Chief Inspector of Mines regarding laying down certain working conditions, not on the point of view of safety but proper working regulations?

Answer.—You are asking me something on which I have not been able to get sufficient technical advice to express a firm opinion. I am however inclined to say that you should limit the Chief Inspector of Mines' responsibility to safety and you should make it absolutely clear. I do not think he should be made responsible in regard to other matters.

Question.—Do you recollect any preliminary lessons which one can draw from say U. K. or U.S.A.?

Answer.—I am afraid I have no experience. Except that I do not believe that the administrative method adopted in U. K. is wholly right. I am doubtful whether making the Ministry of Fuel and Power wholly responsible to the exclusion of the Ministry of Labour has been wholly satisfactory. That is the impression I was left with in 1943, and I do believe that whatever previous practice may be, there is a considerable advantage in safety being looked after by an organisation that is not responsible for production.

Question.—Suppose in the future set-up the Department of Labour is separated from the Department of Mines and worked under two ministers, would you place the Chief Inspector of Mines under the Department of Labour or under the Department of Mines?

Answer.—You are putting to me a difficult question. Because the Departmental view which was originally formed was that he should be in the Department of Labour. But my own view, now having considered the matter a little in the last few days talking to you here, is that you cannot put the safety which is technical under Labour. A large amount of the safety stuff is technical and it must be integrated with production. And though you can make the Chief Inspector of Mines

the absolute authority responsible only to Government, I think that you will tend to lack integration if he was subordinate to a Member who was not also responsible for mines in so long as the Member is responsible for mines and labour. But if the two are separated my view is that he must be under that of the Mines Department but his duties must be limited to safety. Any matter relating to conditions of work, hours of work, welfare must be carried out by Inspectors responsible to Ministry of Labour.

Question.—Suppose the proposed Directorate General of Mineral Development is set up under a separate Mines and Water Development (Mineral) organisation, as recommended by you, then where would you place the various bodies which are at present functioning in the matter of coal, such as the Coal Grading Board, Coal Stowing Board and the Soft Coke Cess Committee?

Answer.—There is no doubt about the Coal Grading Board; that must be under the Director General of Mineral Development.

The Stowing Board; as things stand at present, when it is a safety measure must be under the control of the Chief Inspector of Mines and not of the Development organisation. But it seems possible that the conservation side may become a larger (though not more important) part of the Stowing Boards' work—in which case the Development side might have to take control.

I do not think that the Chief Inspector of Mines would like that suggestion and he is an expert and his view on safety must prevail. At the present moment the Chief Inspector of Mines is in a fairly satisfactory position. When he requires something to be done for safety under the Stowing Board, he issues an order and he has sufficient influence with the Stowing Board to ensure that that order is carried out straightaway. If the Stowing Board become connected more with Development I do not know whether that position would remain. I think it will, but in that case one thing is absolutely certain and that is that if the Chief Inspector of Mines considers some action to be necessary from the safety point of view he must be able to issue orders to the authority responsible for carrying out such matters that that action should be done and should be taken immediately and that authority should be under a statutory obligation to carry out that order forthwith. Provided that this is so, I do not believe it materially matters, if the Stowing Board comes under Development, if you are giving in largely for conservation by stowing. If the Stowing Board comes under Development side that is subject to the essential condition that it has the authority for carrying out decisions if any, that the Chief Inspector may issue.

The Soft Coke Cess Committee must come under D.G. Development of Minerals. I do not know whether it is still necessary for the Soft Coke Cess Committee to continue to help to the same extent publicity in regard to soft coke and research should I think be with some other research body. As things stand at present, I am not really competent to give any firm opinion on that.

Question.—You do not foresee any development of soft coke?

Answer.—I should think that development must be on the research side and on the research side a research body is the right body to handle.

*Question.*W—we have mentioned in the Questionnaire rather in a lengthy manner the various complex problems which have to be solved in trying to put the industry on its legs, and not to allow it to deteriorate and in our survey we have considered how far the State should interfere with production, distribution and regulation of use of coal. It may be that some sort of Central Control must be considered feasible and desirable. If the Government accepts recommendations of that nature (if and when the Committee makes these recommendations), would you consider coal, as such, will need a very much larger attention, larger administrative set up than what you envisage under the Director-General? Should there be one Centralised Body to deal with all these various aspects of the coal industry?

Answer.—The essential thing in my view is to have Minerals, Power, and Waterways under one Department. If you have—both coal and other minerals under one Department, I do not think it materially matters whether the Head for Coal is responsible direct to the Government or whether coal is a separate branch under the D. G. mineral development. The balance of advantage may be in having a separate branch directly under Government.

If a decision is taken to nationalise coal, then the decision is likely to be for nationalisation of some other key minerals and there must be an integrated policy; there must be very considerable discussion between the coal man and the man handling the other minerals.

Question.—You have already stated that you are in favour of this Directorate-General considering certain fundamental principles which should govern the future administrative work of this Section and you have been, it is presumed, compelled by the thoughts of rational development and exploitation of the mineral resources. In envisaging such a state of a Centralised Development—it may be advisory capacity—for an effective functioning, I think it is inspired by the thought that mineral development should be done in a very co-ordinated and integrated manner. There are certain branches of

Answer.—I have not advised a final decision in regard to the detailed setup of the Directorate General. I do not think that is a function of an Administrative Officer until he has the advice of really competent mineral expert to help him. Therefore the setup proposed is at present formulated only roughly—and when we get the D. G. himself details of the organisation will be worked out.

Question.—The various compartmental functions of this Director-General (Mineral Develop-

ment), Geological Survey, Chief Inspectorate of Mines, all these things if they are exercised by Central Authority, do you consider..... there is any possibility of distributing these functions in a rational manner between the Centre and the Provinces? You suggested in the beginning that the execution of, say mining leases should be left to the Provinces. Surely, the Director-General of Mines should be entrusted with the job of laying down certain Statute rules.

Answer.—Undoubtedly. He will lay down all the qualifications of the person who is going to take the lease and the necessary terms of the lease. The terms might for instance provide that certain qualified persons shall do the mining etc.

Question.—You think that laying down the policy in regard to these matters could much better be done by the Central authority?

Answer.—I think so.

Question.—There are regulation of mining methods, safety.....

Answer.—In the case of the three minerals, specifically mica, oil and coal, there should be Central control. You have got to lay down specifically what powers you are going to take to the Centre in regard to the administration and control of coal and these will have to be provided in the legislation to be framed. I do think it is possible to leave certain powers with Provinces, such as the actual selection of any lessees in Khas Mahls in Provinces.

Question.—Leaving aside the execution of certain policy and putting into place certain regulations which are determined by a Central Authority, what other powers can the Provinces exercise?

Answer.—The only powers which Provinces are particularly anxious to retain because of its sovereign nature is the power to grant leases and secure revenue therefrom.

Question.—What are your views regarding Central Government laying down policies in the matter of recruitment of labour, amenities, welfare, education, health, sanitation, etc.?

Answer.—If I can put it in a nut-shell, we should get away from the theory that it is even reasonable for anybody to agree that you must keep wages down because otherwise you will not get maximum production. That is a self-stultifying argument, and it is a short-sighted policy which has been taken by industries as a proper labour policy. I think it is far more likely, that the 4½ day week is largely induced by the unsatisfactory nature of the ration and nutrition. I do think, and this is of great importance, that we have not yet been able to conduct a proper nutritional investigation in the coalfields' area or the results of nutrition on the production of coal.

Question.—I am glad to hear your views with which most forward-looking people will agree. My point was, however, in regard to the laying down of a policy.....

Answer.—I think in the present democratic trends, you have got to accept, however unwelcome it may be to certain people, the fact that labour will have to have a say in settling the conditions in which they work. Therefore, the Tripartite organisation which the Labour Department propose to set up must come in. There must be a proper labour organisation and uniform coal mines labour conditions throughout all coalfields.

Question.—It would, therefore, follow that colliery labour and production will have to be under one Department at the Centre.

Answer.—I do not see it necessarily follows. But I do think it is an argument for having both departments under one Member, i.e., there is split only at the departmental level but not at Member level. I do not think that it is right that labour should be wholly handled departmentally by the same person who is handling production. I adhere to that view because the production aspect from the Government point of view has so often, as it has in the present war, taken precedence over everything else.

Question.—As between the Centre and the Provinces, who should control?

Answer.—It must be the Centre because of the necessity of nation wide conditions of working and safety.

Question.—Have you any thought about the role which Indian States will have to play in these centralised policies, as far as coal is concerned?

Answer.—I would like the States agreeing to follow an all-India labour policy. I would like to see them following in every respect the safety and conservation rules.

Question.—Where do you propose to place the proposed Fuel Research Institute in your organisation?

Answer.—I am afraid that is outside my knowledge. I would be inclined to say that, if it is in the Mines Department at all, it must be on the development side.

Question.—Should it not be there.....?

Answer.—I believe the Pundits of Research may say that it should be in the Central Research Institute which showed considerable problems referred to them by the Director General, Mineral Development.

Question.—The fundamental preliminaries before execution of any Mineral Policy should be in great detail and an exhaustive analysis of the physical and chemical properties.

Answer.—I agree.

Question.—The responsibility to make out a survey is going to be entrusted to the Fuel Research Institute. Do you think whether this Fuel Research Institute should be directly responsible to the Minister who is handling the Directorate General, Mineral Development?

Answer. I cannot answer again. I have had various discussions with the Planning and Development Department. The future researches and the extent to which the suggested research organisation in connection with the utilisation of minerals will be the function of the Geological Survey or of the Scientific and Industrial Research Organisation and the Mineral Research Organisation which is being set up, is a matter on which I think you will have to ask the question somebody else.

Question. Could you give us your valuable advice on the issue raised in question 73 regarding Cesses?

Answer. Well, to some extent. We have not discussed that at all. I am assuming that you are thinking of cesses on coal, for conservation purposes.

Question. There are a number of cesses today.

Answer. I have to go into the issue. One difficulty in regard to amalgamation of cesses is whether cesses for all purposes will be levied on the same type of coal. That to my mind raises the question whether if you are going to levy cesses for conservation, you are going to levy that cess on all coal or only on that class of coal which you think it necessary to conserve. I do not know what view you will come to, on the question of conservation. But I do think it is rather difficult to justify a cess for conservation purposes on all coal. If you are going to conserve a certain quantity and if you are only levying a cess on that quantity of coal, that militates the possibility of amalgamation of cesses. It is easier to levy separately, I believe, than to exempt certain coal from an individual cess. At present we are considering the different cesses.

Question. Apart from that there are various types of cesses, on different basis; in some cases on so much tons of coal raised, in some other cases on so much tons of coal despatched etc.

Answer. I strongly support amalgamation of cesses in all cases where cess is levied on the same quality of coal.

Question. You agree that there is no point on levying cesses on profit, or on despatches etc.?

Answer. I agree. It should be on the type of coal.

Question. There are other kinds of cesses—Road Cess etc.—which pertain to the Provincial or Local Self-Government.

Answer. I cannot believe that it is beyond the capacity of administration to amalgamate all.

Question. You will let the Provinces keep on handling the cesses?

Answer. As regards the welfare cess there is difficulty in amalgamating its administration with other cesses administered by mining boards. One difficulty is that if you are handling welfare it is better for your Board to be Advisory than actually carrying on work whereas the Mining

Boards have statutory duties. If you are going to have as Members of your Board, (as you have got to have in matters of welfare) owners and works, the Board should only be advisory. If however you are going to have a purely technical Board, the matter would be different. I in the circumstances do not think that amalgamation is possible. The Statutory Board under Mining Settlement Act have got responsibilities not only for the mining population but also for the civil population in the mining settlement areas. Well, I do not believe that you can impose on the consumers of coal by a cess on coal the responsibility which I think it is necessary to impose on them in connection with welfare of coal mines labour if the fund so raised is to be spent also in connection with the whole of the civil population in the whole of the mining settlement which is the responsibility of the Provincial Government. That responsibility cannot be taken away from them and it must be exercised by them. Consequently if you are to get good welfare for your mining population, I think you have got to have a fund administered solely on behalf of the mining population. We are to some extent handling anti-malarial activities for the mining population only because it is possible to isolate the mining areas. But, venereal diseases cannot be isolated for the mining population only and it would be of advantage if the organisation handling that will look after the civil population as well.

Question. Could you utilise these Boards, these Provincial Boards, as delegated authorities from the Central.....

Answer. In certain respects yes, I think you can. We have given them some funds for expenditure on health measures other than anti-malaria—there can be co-ordination on matters in which the health interests of the civil and mining population overlap. The Central fund can give the Boards, grant to enable them to carry on their work more effectively.

Question. I was informed, I may be quite wrong, that this Labour Welfare Fund, which you have built up, so far the principal activities of this fund or the administration of this fund has been confined to anti-malaria work.

Answer. That is so. It is now in process of setting up its complete medical organisation composed of a central hospital in each field and regional centres and a number of outpatients dispensaries. It is working now on a policy that the dispensary responsibility in connection with medical aid will be the responsibility of the coal mine, but that it can pass that responsibility on a payment to the fund who will set up necessary dispensaries to serve the collieries and such like.

Question. Is there any link up with Provincial organisations?

Answer. No, it has not been possible to link up with the Provinces entirely—they are not prepared to pay for the civil population the same expenditure per head as we can spend for mining population. I am no longer with the

welfare cess. It is the Labour Department which handles. I had mentioned to them that I was coming here, but they.....

Question. You were good enough to give us your personal views about the ownership of mineral rights in permanently settled areas. Is it really your knowledge or any action is contemplated on those lines?

Answer. It is not to my knowledge. It is in the hands of the Industries and Supplies Department. As regards oil, matter has been under discussion, but I have got to get some various opinions before I can frame a proposal.

Question. In question 71 we raise the issue of economic holding, economic size for coal mines and assuming that this problem looms up large in our deliberations, what sort of

Answer. I know of cases in which amalgamation is certainly necessary.

Question. Would you agree with fragmentation.....

Answer.has gone to a very disastrous extent.

Question. Would you also go further and say that the State should regulate the development?

Answer. I believe that the State should regulate all working of all mines. There will be difficulties in regard to coal where practically the whole area is leased. It is very easy to regulate a mine where that is not covered by leases.—the question of compensation may arise in other cases.

Question. Mr. Prior, you were in charge of this Department of Labour before, in charge of the coal section of the Labour Department for a number of years. Why certain recommendations of the 1937 Committee leading to conservation of coal turned down?

Answer. I was not in the Department pre-war. I came into the Department in 1941 and when I began to find my way about the files, with the war on we had very little time. I did see the recommendations of the Coal Committee's report and the action taken on them but it was impossible to contemplate tackling them further during war time in that Department with an insufficient staff. By 1943 coal was transferred to Industries and Supplies Department but by that time we were planning certain steps and had framed certain ideas.

Question. From the point of view of conservation this is really a different question, would you suggest that stowing should be made compulsory for all classes of coal in view of our present position?

Answer. I have little doubt that it should be made compulsory for the high grades of coal but am a little more doubtful about ten and twelve seams and I do think, if you have got to keep in mind the view that the reserves of low grades coal have never been measured. And continuously we are finding coal at various places in India fairly freely. If you are going to put up price of coal as stowing must, you have to consider carefully

what will be the effect on industry and whether the necessity or the advisability of conservation is of sufficient importance to impose that additional burden on industry at this time in respect of all coals. Providing you mine correctly and in accordance with properly designed mining regulations and rules we should not lose a great deal out of seam 10, 11 or 12.

Question. What about the financial cost of such a measure? How will it be borne, entirely by the consumers or the producers.

Answer. It should be borne by people interested in coal. It should be only levied from the consumers of that class of coal they consume.

Question. It is rather difficult to administrate.

Answer. I do not think so.

Question. Would you express an opinion on the general matter of electrification of the track between Howrah and Moghal Sarai?

Answer. I would prefer to leave it to my electrical adviser because he has certain definite views on the point and I am not really competent to express a different opinion.

Question. Do you think there is a case for the State undertaking itself the development of new coalfields?

Answer. Well, I certainly think that there is a very good case for the Madras Government taking it up in connection with the lignite in Madras. I think that where Government own their own collieries there is a certain advantage in Government handling a few of them. By that I mean only the management from the point of view of producing coal. I have no hesitation whatsoever in saying that any policy in regard to the disposal of coal should not be in the hands of the Department that is mining that coal or utilising that coal.

Question. Then is it your view what Railway collieries should be run independently when they have an installation?

Answer. Yes, there is no objection to independent mining administration. Disposal of their coal should however be entirely in the hands of the organisation which is handling the disposal of all coal. It should be disposed of in accordance with the declared policy of the Government in regard to coal and without undue regard to railway expenditure. I think that unless you do that you will not get a proper coal policy.

Question. You really have no objection to a large consumer attempting to safeguard his interests by owing or having certain coal reserves.

Answer. I think I have, I think that your co-ordinated leasing rules may well lay down that the maximum amount of reserves of coal of certain qualities leased to any one individual shall be limited.

Question. Having regard to the use of metallurgical coal resources and the present ownership and operation of the coal mines producing metallurgical coal would you agree with me that

it is very difficult to set up third and fourth steel works in this country unless we pay the price to the present owners and Railways.

Answer.—I am sorry I cannot give a direct answer. What I do feel on the metallurgical coal is that I do not know for what purposes metallurgical coal is going to be needed in future. Atomic energy? It may be needed more or it may be needed less. But I would like to see that a very high proportion of the metallurgical coal resources of this country is controlled by an integrated policy utilising that for national interests.

Question.—The statement of Government policy which you have made is, I take it, based upon the present constitution, namely, as laid down in the Government of India Act, 1935?

Answer.—Yes.

Question.—Have you taken into consideration the necessity of very considerable adjustment of this policy in view of the future constitutional picture as presented to us?

Answer.—I would prefer to wait until I know what that constitutional future is going to be before I discourse on it.

Question.—You speak on behalf of the Government of India?

Answer.—I am speaking personally. I have not taken the order of the Government of India.

Question.—But let me correct myself. So far as the Statement of Policy is concerned, I take it that your views represent Government of India's.

Answer.—I cannot say that my views necessarily represent Government India's. They of course represent my Department's views.

Question.—Then it has not yet come to the stage of Government taking a decision on that?

Answer.—Certain aspects have been placed before the Government and no final decision has yet been taken.

Question.—I just want to know...and you may give your personal view....as to whether you consider that a minimum control essential in the national interest, should be maintained at the Centre, whatever the future constitution of this country is going to be? As an experienced official, I want your opinion.

Answer.—It is rather curious. I had not thought of what you put to me now. It works out rather this way: A very considerable part of oil in this country, as far as I can see is likely to be either in Group B or in Group C.

The coal will be distributed between Group A, Group B and Group C, but the great part will be in Group A.

Provided each Group integrated its own policy, it might be possible to export the coal necessary for Bombay from Raniganj through Calcutta but this might be difficult without some measure of Central Control. On the whole, I think, that the proximity in which Jharia and

Raniganj stand to each other, make it impossible for a really effective coal policy, unless some part is integrated.

Question.—What can be the policy of that integration?

Answer.—I cannot say.

Question.—All such matters as conservation cannot be tackled successfully unless they are treated on an all-India basis?

Answer.—No. Conservation is one of the few that need not be integrated. It might be tackled on group basis. Transport, I take it, in any case, should be Central. It is so linked up with production, but it is almost impossible to separate transport and production. Conservation, on the other hand, I think can be tackled by individual group.

Question.—The metallurgical industry at the present moment is situated in Group A.

Supposing we want to conserve a particular type of coal for the benefit of that industry and that type of coal is found not merely in Group A but also in other Groups. Now, the other Groups are at liberty to export the coal outside the country or make any use of it they like. The conservation responsibility then rests exclusively on Group A.

Answer.—I am no politician. I am an administrator. Your question is purely political one.

Question.—Now taking the question of labour conditions, certain regulations have to be adopted as a result of certain International Conventions. Labour regulations are not merely confined to India; the question of women working underground is an international one. Now how would you give effect to such international policies, unless there is one unified authority who has got constitutional right to enforce such regulations uniformly? Even under the Government of India Act, 1935, the States are not under the Central Control in such matters.

Answer.—My own view that is if the future constitution of India is so designed that it is impossible for the Central Government to take effective measures to put to action international conventions, then she will not be able to ratify international conventions. That is the case in the U.S.A.

Question.—You have the Centrally administered areas. But in regard to coal in Baluchistan, in what manner the Government of India has been controlling or advising or assisting that administration in the matter of developing her coal resources?

Answer.—I can speak only up to April 1944. As soon as coal became an urgent matter—and we were urged by the Supply and War Transport Departments particularly to develop coal in the outlying fields—we deputed a Mining Engineer from our own Mining Section to Baluchistan to assist the administration to the greatest extent possible and to increase production of coal to the maximum extent possible. My recollection

is that the Centre sent up a briquatting machine and the Mining Engineer and thereby enabled the administration to use the dust coal in Baluchistan in the place of steam coal. Further the Engineer went about advising colliery owners as to how to develop coal and the Baluchistan administration on the question of leases etc.

Question.—I have heard it said that Baluchistan Administration had a scheme under which they would undertake the development of certain minerals on a pretty large scale. It is stated that scheme was turned down by the Government of India.

Answer.—Yes it was, it was not thought likely to lead to increased production.

Question.—In regard to the details of administration, to what extent is the Baluchistan Administration had an opportunity to prescribe for instance, the area to be leased and the terms and period of leases and things like that. Do they refer to you in each case?

Answer.—Subject to the provisions laid down under the Mining Rules.

Question.—I should say they have brought to light wise divergencies in regard to some matters in regard to the Baluchistan practice and the practice in the neighbouring Province of Punjab.

Answer.—If the intention is to say that the Central Government has not exercised sufficient control over coal in the past, I am quite prepared to agree, but we ought to do move in the future.

Question.—I was not saying that in a critical spirit. My suggestion was that in so far as there is a Centrally administered area possessing extensive coalfields, would you not expect it to be administered in such a way as to furnish us a model for the other Provinces to follow?

Answer.—Any model furnished by Baluchistan will not be of much help in Bengal but I do agree that there ought to be integration of policy in the matter of coal.

Question.—Especially regarding period of lease and things like that.

Answer.—I do not say that three days after taking back coal under the administration of the Mines Department we will be able to issue rules regarding period of leases, areas of leases, etc. I shall want advice. I do not believe those rules will be only for Baluchistan as such; those rules should be for the whole of India.

Question.—The coal department has been under different Members. Do I take it that when this Directorate of Minerals is set up, the entire activities of the present department should be removed from the present department that controls it?

Answer.—That is intended by Government. As soon as a suitable opportunity occurs and the coal situation is such that we can face another transfer, that is our definite intention.

Question.—As regards taxation, you have said that there is a case for the amalgamation of certain particular items. Is it not a fact that certain cesses are levied to be spent not by the Government but by certain Statutory authorities, like the District Board?

Answer.—I would not amalgamate the cesses, but the collection of cesses. At present, these cesses are collected by different authorities. What I suggest is that one authority should collect all these cesses and distribute the collections in accordance with the provisions made by legislation.

Question.—Would they not, in that case, lose their identity?

Answer.—They might lose their identity, but the bodies would continue to get their share all right.

Question.—There might be particular authorities charged with the decision of any appeals that may arise out of a particular cess. It may not be uniform in all places.....

Answer.—The cess is going to be a uniform cess and there is going to be a uniform method of collection through despatches or something of that nature. At present it is not uniform. I don't see any reason why the Road Cess, for example, should not be the same in Bengal as it is in Bihar.

Question.—There you would come up against the Provincial field of legislative authority.

Answer.—I quite realise that, but I am hoping though perhaps unreasonably, that there will be a certain amount of co-operation between the Provinces and Groups in these matters.

Question.—There are certain Central Cesses, such as for the Labour Welfare, Production Fund etc. and there are so many Provincial cesses. Is it your idea that these cesses should be amalgamated and collected centrally?

Answer.—If the Centre is in control and there is agreement that all the cesses should be on the basis of the cess on despatches, I think it would be advantageous.

Question.—Then whom would you make responsible for the purpose of satisfying itself that the different objects for which the different cesses are being levied are actually being realised in a practice?

Answer.—Assuming that the Jharia Mining Board Act was amended or altered, providing that the cess should beat the rate of, let us say, one anna per ton on despatches. There is another cess of 3 pice per ton. You will gradually amalgamate them all and say arrive at a total collection of 8 annas per ton. Of the total amount recovered you would distribute 1/8 to Jharia Mining Board. If this is not considered sufficient by the people who administer the Mining Board, then it would be for that Board to decide on an increase of cess which would give them a right to an increased share of the pool.

Oral evidence of Messrs. H. M. Mathews, C.I.E., Chairman, Central Technical Power Board, W.L. Vorduin, Hydro Electric Member, Central Technical Power Board, H. S. Kulkarni, Technical Officer, Electrical Commissioner's Office representing the Central Technical Power Board.

Question.—Could you tell us about the decision so far taken as to the number and location of the various dams contemplated in your preliminary survey of the Damodar Valley?

Answer.—The preliminary survey contemplated eight dams and we have been instructed to proceed with the detailed design of the smaller one at Tilaiya. We have no instructions to proceed with the construction of anything. A dam is proposed at Deolbari and we have also made a complete project survey of Maithon but Government have asked us to reconsider it once more, in case it would be possible to do without Deolbari dam by making Maithon dam still higher. Our intention was against that, but Government have asked us to reconsider it. The Panchet Hill site has taken the place of the Sonalapur site in our original scheme.

We have investigated the mineral deposits in the area by an examination of available geological reports. According to our information, dams on the Barakar will not flood any coal bearing area.

Question.—Your original recommendation as regards Maithon was that the water level should be 500 ft., and you gave us to understand you were studying the possibility of raising it to 533 ft. If you have taken a decision to raise it to 533 ft., would it not affect the adjoining coal measures?

Answer.—We don't think it will affect even at 533 ft.

Question.—If your studies indicate that by raising the dam to 533 ft. it will affect coal measures, then you will consult the industries concerned, before you come to a final decision?

Answer.—We don't take a decision. We merely recommend. We have been in close touch with the coal interests and the Government Coal Department.

Question.—What about the projected dams on the Upper Damodar River?

Answer.—There are 2 small dams on the Upper Damodar, one on the Konar and one on the Bokaro River.

We investigated Bokaro because there are the Bokaro coalfields, but we found that the Bokaro water level will not reach any mine openings and will be lower than any coal bearing area.

The Konar will not be on coal bearing area.

There is a big dam on the Upper Damodar and that too will not flood into any coal bearing area.

There is one small dam near Jharia field, but it is merely a divisional dam. It is a low dam and falls in the river by means of a canal and that won't be in flood. This small dam should be helpful in the matter of stowing in the Jharia field.

Regarding the effect that the lower dams will have on Sindri, we had a meeting on the 13th December, 1945, which was called at our request to acquaint coal interests with the results of our studies.

The Geological Survey had made a survey of the area of the Sindri field, and determined where the coal bearing seams are; we told the coal interests there that the four dams would occasionally flood into the coal seams. So we suggested an alternative and showed the mining interests that if a weir were constructed at Panchet Hill, it would not flood the coal seams and would not flood any higher than the present water levels. After that we recommended the removal of the location of the site to Panchet Hill. These original sites were fixed merely in a general way and all the detailed studies and locations will have to be decided later as a result of discussion. And that is the only change in the location which we found necessary to make thus far.

Question.—Are there any other projected dams in the lower reaches of the Damodar?

Answer.—There are three other projected dams: one at Anderson Weir, another barrage somewhere above the Anderson Weir and another barrage below the Anderson Weir.

Question.—I can take it that in your studies of the various dams you are giving important consideration to the possible effect on the adjoining coal measures?

Answer.—Certainly. That is the basic reason why Sonalapur Dam was dropped. That is also the reason why the Bajiori Dam was dropped, as it might flood the Jharia seams.

Question.—Coming to the effect of the dams on the flow of sand down the river, have you made any detailed study of this subject?

Answer.—Unfortunately, engineering research regarding silt in rivers is not complete and cannot be complete without many years of very detailed studies. Silt in the stream bed in any river is hardly ever in equilibrium. The silt is picked up from the river bed and is deposited in another portion of the river. That condition keeps changing with every change in the velocity in the stream. The velocity also changes as a result of the abundance or lack of silt. There is thus continually change both in velocity and silt.

I should also mention that silt, so far as we know now, can really be divided into two parts: the coarse silt, i.e., bed silt containing coarse particles, and the suspended silt which contains vegetable matter, clay, etc., (Aluvium). Now the bed silt which is sand gravel will be settled at the head of each reservoir. The suspended silt would probably stay in suspension or very slightly settle down very near the dam. That will clear the stream. When the stream is released through the dam, it will be flowing out at a high velocity on account of the head at the reservoir. On account of the high velocity, there will be a larger capacity to carry and pick a belt of sand. The river bed below the dam will receive this sand for a number of years until a certain equilibrium has been established by the action of the high velocity stream. As more and more silt

gets accumulated, the velocity of the stream is also slowed down. We know that in general theory, but we do not know the extent this will happen, and it is very complicated. It is hardly worth very detailed study. We can only say generally that there is not much reason to expect a very great change in the silt bearing capacity of any stream several miles down the stream from an artificial obstruction. We try of course to pass sand through in a reservoir because it is very undesirable to have the reservoir filled up by the silt and therefore we provide in a dam a large capacity to try and keep the bed level moving through at the same time. This provides us with the opportunity to discharge fairly large quantities of sand for the use of down stream interests. For instance if you want to fill in a burrow bed that you have used up and if you want to fill up by the natural action of the stream, there is no reason why some water should not be released for a short period until that bed is filled up, if that is desirable.

Question.—You have studied this unruly river for sometime now. Is it not a fact that sand movement in this river principally consist of movement of what you call bedloads from one section to the other?

Answer.—It may be.

Question.—It has been found in various places where stowing is done that the beds normally fill up overnight if there are sufficiently heavy floods. So, it is really that velocity of the water plus the volume which is going through, which is responsible for bringing sand down? By erecting barriers in between and assuming that the sand in suspension has no material effect in replacing the sand down below, assuming that is correct, then these barriers will reduce the velocity of water or the volume, even though you may use your sluice valves.

Answer.—They may not provide the same velocity—they will provide a higher one.

Question.—Not in certain stretches?

Answer.—Right below in the dam there will be.

Question.—If you open your sluice valves that movement would bring the sand in the reservoir to the lower reaches of the river?

Answer.—No, it may not bring it far down. But below the dam the water goes out of the sluice at a very high velocity. That high velocity induces a very high carrying capacity of sand.

Question.—If the sluice valves are opened neither the volume nor the velocity will be any where near the flood velocity?

Answer.—It would be very much higher than any velocity during the flood. You are talking now about a head which is locally concentrated at some hundreds of feet and the discharge of the water through the sluice gates will be in the neighbourhood of 80' per second. There is no such head available even during the flood. The velocity during the flood may reach as high as ten feet, per second. As soon as the sluice gates are opened, water will spurt out and that is the velocity which makes it possible to carry a much

heavier load of sand. We have no quantitative analysis of this. We don't know how much the carrying capacity of the stream is increased by an increase in velocity but we do not know that it is very much higher. Right below, the silt is picked up in the stream again. A few miles further down that velocity is gradually slowed down where there is obstruction in the natural river bed and then the silt which is picked up from right below the dam is passed through the gap, some way further down the stream and beyond that you have your normal conditions.

Question.—Have you in contemplation any dredging in the river?

Answer.—Dredging is the cheapest way of moving large quantities of sand. For a long time this could not be done because there has been no water available during the dry season to use the dredgers or even contemplate them. If the stream flow is regulated by these dams, there is no reason why dredgers should not be used.

Question.—Are you contemplating using dredgers in the dam heads where sand will be deposited towards the....

Answer.—No. We cannot apply a dredger that way. We are looking into the possibility of building the dam by means of a large dredger with hydraulic sluicing operation, which is the cheapest way of putting them down.

Question.—After the construction is completed you don't.....

Answer.—Not for the purpose of operation of the dam. It is part of these plans of the reservoirs that as regards the volume that a reservoir would hold the silt deposits in a hundred years would still leave the reservoir large enough to hold the water. That is the design.

Question.—I recollect reading somewhere that you had assumed that the heads of the reservoirs will be filled up with sand?

Answer.—Yes.

Question.—As I understand it, the Damodar in flood will deposit all the bed load at the head of your reservoir. You will then open your sluice gates and release the water. Will that water go through the gates clear or will it carry the deposited silt?

Answer.—It mostly goes through clear.

Question.—It will have considerable velocity when it descends on the river bed, and it will pick up the sand immediately below the dam and take that sand deposit a number of miles further down stream. The danger thus is that all the sand immediately below the dam will be taken away.

Answer.—I won't say all, only a quantity.

Question.—If you will admit that not very far below your Panchet dam site are the sand deposits used for stowing the Dishergarh seam. So, it appears possible that the dam will remove the sand beds now serving the Dishergarh seam.

Answer.—It won't happen.

Question.—Is it possible that the deposits of sand for about 4 miles below the Panchet dam will be shifted further downstream?

Answer.—I assure you that there will not be any difficulty for sand stowing. I do believe that Government can well afford to give an undertaking as to that and the Government will do that. Sufficient sand will be provided at any cost.

Question.—Can you say whether you can give an assurance that the sand will be deposited at whatever places it is required?

Answer.—We cannot give an assurance. Nobody can give that assurance. It is completely influenced by other factors.

Question.—Nor can an assurance be given to the coal industry that the cost of obtaining sand which will remain somewhere at the level it is today?

Answer.—I am only giving you my opinion. That is not an assurance. There is no fear of difficulty for sand stowing.

Question.—Our estimate of requirements, if we follow the principle of stowing for the sake of conservation as well as for safety of mines, run into several million tons per year; the Jharia field requires 22 million tons and the Raniganj 14 million tons a year, the requirements are up to 1951; after 1951 a few million tons more will be required. Can you generally advise us as to whether these requirements could reasonably be expected to be met?

Answer.—I think they can be. Of course we do not expect the full operation of the dams before 1960.

Question.—Have you considered the point that when sand is loaded on a large scale from one point on the river it needs replacements at that particular loading point? You cannot move ropeways up and down the river to suit varying deposits. The sand must be replaced at the appropriate place.

Answer.—I think you will have such replacements of sand. On the completion of the first two dams we will keep close watch on this point. I would like to have the support of the industry. After construction of more dams they will have the advantage of the seeping and on the cost of moving the sand also. The planning for navigation will also serve the national interests in the matter of coal movement, as coal can be brought to distant places at cheap rates.

Question.—Navigation is also one of the purposes?

Answer.—Yes, navigation is one of the purposes. I would like to submit that in the case of dams very careful attention will be paid to their operation in the interests of sand stowing. What happens in the case of the first Dam at Tilaiya will be watched and the facilities for sand stowing can be better adjusted in subsequent dams.

Question.—Would you tell us something more about the navigation aspect?

Answer.—We have not dealt with it. But I may say that the fact that it will make a navigation highway is very attractive. If you want to ask about that further I would suggest you keep in touch with the Central Board of Navigation who have instructions for planning the navigation side of this scheme. Obviously you can do no navigation till you control the river. They have the economic side also under examination.

6. Oral evidence of Mr. H. V. R. Iengar, C.I.E., I.C.S., Secretary, Dr. D. N. Wadia, Minerals Adviser, and Dr. M. K. Maitra, Dy. Industrial Adviser on behalf of the Planning and Development Department.

Mr. Iengar.—When the P. & D. Deptt. issued its statement of policy on Post-war Industrial Development in April, 1945, it was considered that a more detailed enquiry into the conditions prevailing in the coal industry was necessary before Government could frame any decision as regards this vital industry. As a matter of fact, the appointment of this Committee (the Indian Coalfields Committee) had by then already been decided upon.

The need for a clear mineral policy, as a prerequisite for sound industrial development, was also fully recognised and a start was made by the appointment of a Mineral Adviser. Many suggestions were then put forward, but for various reasons, such as the acute shortage of manpower and the many other pressing problems requiring attention, much progress could not be made until the recent bifurcation of the old Labour Deptt. and the creation of a Deptt. of Works, Mines & Power. Since then certain decisions have been taken both as regards the policy in relation to minerals and the organisation necessary to execute the policy.

There is general agreement amongst Provinces that certain minerals, such as coal, petroleum, mica etc., should come under Central control. In this matter, the reaction of the Provinces was similar to their response to the suggestion in the Government of India's statement of industrial policy that, in the national interest, certain industries may have to be taken under Central control. But any suggestion that all minerals, whether essential or not, should be taken under Central control would certainly prove unacceptable to the Provinces, and not unnaturally. Suitably comprehensive legislation is now being drafted to cover the decision as regards mineral policy and it will be placed for approval before the new Interim Government.

On the organisational side, it was considered necessary to have machinery that could carry further the work of prospecting for and proving minerals now performed by the Geological Survey of India. For example, it would be necessary to get fairly extensive analyses made to determine the quality of the minerals found. Then, as regards the development of minerals, correct mining practices would have to be prescribed and their observance enforced, where necessary. Advice would also be constantly needed in regard to the leasing of mineral-bearing lands on sound lines. For all these purposes, the P. & D. Deptt. proposed the setting up of a Bureau of Mines—it has since been proposed to call it the Directorate General of Mineral Development and to place it under the Department of Works, Mines & Power—whose services would be available also to the Provinces in respect of minerals not taken under Central control. But the Directorate General will not, in such cases, have any statutory power of interference or inspection, though there is no reason to suppose that Provinces will,

at any time, withhold the fullest facilities. As regards Centrally controlled minerals, the Directorate General will have greater powers and will be in a position to enforce its decisions over other Central Departments that may be dealing with minerals, e.g., the C.B.R. with salt and the I. & S. Dept., with coal (for the present).

So far as he knew, there had been no discussions hitherto designed to bring Indian States within the ambit of the policy and organisation envisaged above. But a useful precedent had been created over the question of industrial policy. Considerable headway had been made in securing the agreement of States to a uniform policy in this matter. The procedure adopted is to make all-India targets for development and to allocate the quantities to British India and Indian States in consultation with States' representatives. There was reason to believe that the States will stand by these allocations, though there is no constitutional means of imposing them.

Question.—What should be the basic principles of India's mineral policy?

Mr. Iengar and Dr. Wadia.—This may be dealt with under three heads:—

- (i) First of all a complete and detailed survey of the country's mineral resources is necessary. This is essentially a duty to be discharged by the Governments. The location or discovery of minerals is a matter for the G.S.I., which, for coping with the very large anticipated increase in work, is being expanded fourfold. Of course, the Directorate General of Mineral Development should be in a position to guide the G.S.I. as regards the minerals which must receive priority of treatment in this matter, having regard to the country's needs. And, for this purpose, the Directorate General and the G.S.I. will be closely integrated, though they will remain separate and independent bodies under one Department. As already stated, the detailed proving of mineral resources will be the duty of the Directorate General.

The fruits of exploration must naturally be readily available to the public. It is, therefore, proposed to create a proper Information or Statistical Branch attached to the Directorate General. This Bureau would give complete statistical information about mineral production, utilisation, export etc., and also information about world practices. The analysis of, say fuel samples, for the public would be the function of the Fuel Research Institute but the question as to how best the services to be rendered by the D. G. of M. D. and the Fuel Research Institute should be integrated is still under consideration.

(ii) There should be laid down sound mining practices for the various minerals and their proper enforcement ensured. The present mining regulations cover some of this ground, though they are more concerned with the safety of life and property. On the enforcement side, the Chief Inspector of Mines now operates and it seems to be the view of the Labour Department that safety in mines should be kept independent of the Directorate General of Mineral Development, and indeed of the Department of Works, Mines & Power. But there seemed no valid reason why the staff entrusted with the duty of enforcing regulations for securing proper mining from the point of view of conservation should not also look after the enforcing of safety regulations.

(iii) The exploitation of the minerals must be in the interests of India. The mineral industry in India is now dependent on the export market to the extent of over 75 per cent.; only a small percentage of the outputs are processed in the country itself. It is unsatisfactory that India remains a producer and exporter of raw materials only. This apart, it will be necessary in respect of some strategic minerals to ban or strictly regulate exports. In pursuing the policy of mineral exploration and development it is obviously desirable to take things in a certain order of priority. Having regard to the present position and future needs, it would seem that precedence in this country should be given to work on coal, petroleum, manganese, gold, copper and chromite in that order; these, in fact, constitute the major mineral resources of India.

Alongside the creation of a Directorate General of Mineral Development work is proceeding on the setting up of a number of technical research laboratories. These, for the present, are the National Physical & Chemical Laboratories, the Fuel Research Institute and the Central Ceramics Laboratory; a Metallurgical Laboratory is already in existence. The work of all these bodies will be closely integrated with that of the Directorate General of Mineral Development, though they will remain under the independent control of the Council of Scientific and Industrial Research. There are, however, certain proposals under consideration for bringing these laboratories under the direct control of Government. As regards the Fuel Research Institute, there did not appear to be any real advantage in bringing it under the control of the Department of Works, Mines & Power which will be responsible for the D. G. of M. D. Fuel Research embraced other things than coal and the programme of work before the Institute was so heavy that the Department of W. M. & P. may be physically unable to supply useful control. This apart, research is an acade-

mic process and an institute conducting research on coal need not necessarily be under the control of the Department concerned with mineral development. This, however, is not to say that the activities of the Fuel Research Institute should not be integrated with and guided by the needs of development. On the contrary, adequate liaison must and will be maintained.

Chairman.—Should mineral development take place in a co-ordinated manner?

Mr. Iengar.—His personal view was that this was undoubtedly necessary, but in view of the recent proposals for a new constitutional set up, the position may become complicated. Consequently, too, the proposed legislation would be of a short-term nature only. There is, however, still the possibility that the Provinces and the proposed groups may be impressed by the paramount need for a unified mineral policy and may agree to the setting-up of a Central Co-ordinating Authority, whose advice and decisions to the extent that power is vested in it, will be implemented by Provinces through uniform legislation where necessary.

Speaking in his personal capacity it seemed to him that for coal, if it is taken under Central control, powers in regards to the principles governing the grant of leases—though not their actual grant—and mining methods, exploitation (meaning thereby production), marketing arrangements, research and labour questions (including amenities) should necessarily be exercised by the Central Government.

Question.—What is the distribution of powers in regard to mining between the Federal and State Governments in the U. S. A.?

Dr. Wadia.—Each State has its own Mines Department, but the States have delegated certain specified powers to the Federal Government. On these matters the States' Mines Departments have to comply with the directions of the Federal Bureau of Mines; but even in other matters the advice of the Bureau of Mines is sought.

Question.—Should State control over mineral development be carried to the logical end viz. State operation of mines?

Dr. Wadia.—Yes, in the case of gross mismanagement the State should take over, and if necessary, operate the mines.

Question.—Can the Committee be given details of plans for industrial development made by the Planning and Development Department and approved by or under consideration of Government?

Mr. Iengar.—(i) It has been decided that, over the next 5 years, the production of cotton textile should be increased from the present 4,800 million yards per annum to 6,500 million yards per annum.

(ii) As regards cement, the present production of slightly under 3 million tons per annum is to be raised to 6 million tons per annum over the next 5 years.

(iii) For sugar, the concerned panel has recommended an increase of 50 per cent. over the present production of about 11 lakhs tons per

annum to be achieved over the next five years. Government has increased the target to 18·25 lakhs of tons.

(iv) Associated with sugar manufacture is the question of the production of power alcohol in respect of which the target recommended by the panel is 20 million gallons per annum. Government have decided that this should be stepped up *pari passu* with the increased target for sugar.

(v) The proposals for the Iron & Steel industry envisage an increase in production of 1½ million tons of finished steel per annum over the next 6 or 7 years. The target eventually accepted by Government will be communicated to this Committee in due course.

(vi) There are certain other comparatively minor recommendations also, e.g., of the Heavy Chemicals Panel. These include the yearly manufacture of 30,000 tons of D. D. T. requiring 3 million gallons of Benzene and 250 tons of Phenol; targets have not been suggested for a number of other Chemicals, whose manufacture has been recommended. At present, there is no simple and reliable way of estimating what the production may be say in 5 years time. The targets as sanctioned by Government can be taken as reasonably firm bases for estimating India's future coal requirements. In the framing of their plans, the Panels have taken into account the availability of raw materials, power and transport facilities. Whether coal was specifically considered was not certain, but it may have been as constituting a source of power supply.

Question.—A number of the bye-products of high temperature carbonisation of coal are required by the country in larger quantities e.g., phenol and benzene. Should special action be taken to instal new coke-ovens for this purpose and can the manufacture of hard coke (divorced from pig iron production) be made subservient to a chemicals and drugs industry based on the bye-products?

Dr. Maitra.—Any increase in steel production would automatically lead to the coking of larger quantities of coal. The question of low temperature carbonisation should be actively studied, especially because of the colossal waste of gases involved in the present Indian practice of making soft coke. But the recovery of bye-products alone cannot provide the economic justification for high temperature carbonisation. This would be the case more particularly with Indian coals

with their rather low volatile content—they yield only half the bye-products obtained from English coals e.g., 2½ per cent. coal tar as against 5 to 6 per cent.—and a use for the coke must necessarily be found.

As regards low temperature carbonisation, the soft coke produced could be used, not only as domestic fuel, but also for industrial purposes, including electricity generation perhaps even the railways with certain modification of engine boilers. It may be that the failure of low temperature carbonisation in other countries is due to the fact that already large quantities of coal tar were being produced in those countries e.g., in the making of large quantities of hard coke for the enormous and steel industry. The position is, however, different in India which needs much larger quantities of coal—distillation products. But low temperature carbonisation in India must be preceded by considerable research on the quality of coals; in the meanwhile, means should be urgently found for stopping the present most wasteful method of soft coke manufacture in waste-heat type ovens.

Question.—As regards the proposed Fuel Research Institute, is it considered that an Institute with such meagre funds as sanctioned will be able to meet the requirements of the country?

Answer.—Clarification of this might be sought from the C.S.I.R. It may be that the C.S.I.R. did not press their case sufficiently on encountering objections from the Finance Department. But if this Committee came to the conclusion that the Fuel Research Institute now contemplated is inadequate and would not be of service to the country, the matter will certainly be reopened and pressed very strongly. The importance of proper research for the sound utilisation of India's coals was fully realised and it may be that the staff sanctioned was most inadequate for achieving results in measurable time. It was also true that the 1937 Committee's recommendations as regards coal research had been totally ignored but there had been a change in the attitude of the Government to research since 1937. It might be possible for the P. & D. Deptt. to look into this question further even before this Committee's final recommendations had been made.

In regard to research, it is quite clear that in India the initiative and the drive must come from Government. It would be most unsatisfactory to rely to any appreciable extent on private activity in this matter.

7. Oral evidence of Mr. L. T. Gholap, C.I.E., I.C.S., Controller of Indian Shipping, Bombay.

Question.—Could you give us your personal views in regard to the present level of freight rates on coal?

Answer.—Coal and salt are bulk cargoes. In pre-war times, there were no fixed rates for these cargoes and ships could be chartered by any interested party at rates to be negotiated. Chartered ships may be Indian coastal shipping or non-Indian tonnage. Ordinarily, a number of tramps used to come on the coast and carry coal cargoes. Sometime after the outbreak of the war, the Ministry of War Transport requisitioned all the British tonnage and British ships operated in the coastal trade of India under the Ministry's control. The Ministry of War Transport took the financial consequences of these voyages. During 1941, the Government of India had some correspondence with the Scindia Steam Navigation Co. about the steamer freight rates for coal and salt but finally the rates adopted by the Ministry of War Transport were followed by the Scindia Steam Navigation Co. So far as I am aware, the rates prevailing at present are those adopted in 1941. As compared to pre-war rates, the freight rates obtaining at present are high, but the cost of operation has gone up very considerably. Nevertheless, I feel that a 20 % to 25 % reduction on the present rates would not be unreasonable. Operation cost is not the only criterion in fixing freight rates. A reduction in rates is not likely to come about unless the present shipping control disappears. When shipping control disappears and the railways are in a position to carry more coal than at present and when shipping is available in adequate quantity, the steamer freight rates for coal must come down and this is what the shipping companies are afraid of. At present, a foreign ship cannot be chartered except with the permission of the Commerce Department under D.I.R. 67-A. I cannot say what will be the policy of the Government of India in future about the chartering of foreign ships nor can I say what policy the British Government will follow. Ships on the Indian register operate under a system of licensing administered by the Controller of Indian Shipping. After the termination of the Liner Requisition Scheme in March 1946, British ships operate on a system of block licensing which means that certain steamers belonging to certain companies are allowed to operate in certain waters only and cannot go outside except with the sanction of the Ministry of War Transport. Under the Tripartite Agreement to which Scindias are a party, they are precluded from operating on certain routes. If shipping control disappears completely, there may be a tendency to try and capture the trade routes which were formerly catered for by the steamers of the Axis countries.

Question.—Is it really more or less competitive sort of business? The movement competition threatens, they will have to revise the freight policy.

Answer.—Yes.

Question.—What is your anticipation in regard to this control?

Answer.—Shipping control at present has been extended till the end of November 1946 and as the Defence of India Rules will expire on the 1st October 1946, an Ordinance will have to be issued to cover the period after that date. Whether Shipping control should be extended beyond November or not will depend upon the position of the railways and the availability of shipping. Even now, on certain routes, I find that shipping space is in excess of the cargoes offering. The reasons for this are partly high freight rates and partly the fact that goods are not moving as freely as they should because of import and export control not only external but also internal.

Question.—As long as this shortage continues in the matter of movements of commodities whether by rail or by sea, should, in your opinion, shipping control continue?

Answer.—Yes. At present, control has been relaxed to the extent that shipping companies now programme their own sailings. Upto the 2nd March 1946, the Coastal Shipping Committee which consisted of myself and the Chief Representative of the Ministry of War Transport used to do that. Then, of course, it was morally incumbent on us to find the cargoes and we did find them.

Question.—Is there any possibility of some scheme under which the movement of coal by rail or by sea could be co-ordinated?

Answer.—We try to co-ordinate as far as possible. If the Bombay Coal Allocation Committee want 40,000 tons of coal for Bombay, we usually ask for part of the supply by rail and the balance by sea. Usually, it is difficult to get coal by rail as the railway capacity is required for the movement of other high priority goods. The Committee in Delhi decides how much coal we shall get by sea and how much by rail. We have no choice in the matter. We are anxious to build up our stocks with rail-borne coal because we do not want to be left with high priced sea-borne coal, if prices collapse. If railways can move more coal, then the shipping companies will have to bring down their freight rates. Sometime ago in informal conversation with one of the shipping companies, I gathered the impression that they were inclined to reduce the freight rates anticipating larger transport by rail. But now that they know that the railways cannot give much relief, their attitude seems to have hardened.

Question.—Is there shipping enough, and if so, can it be made available to carry all the coal from Calcutta which feeds the coastal areas in the East Coast as well as the West Coast, if as a matter of policy Government decided to encourage this sea-borne traffic from Calcutta?

Answer.—Not at present. One of the difficulties is the one way traffic from Calcutta to

Madras. There is not much cargo offering for the return voyage to Calcutta and a number of ships have to return in ballast.

Question.—What about a shuttle service with rice and salt?

Answer.—Rice moves at present only from Karachi to Cochin and Travancore ports. From Karachi to Bombay, we get more of wheat.

Question.—Salt from Karachi?

Answer.—During the war, salt came mostly from the Red Sea areas as we could not spare more than two ships for West Coast ports. This continued till November 1945. In the meantime all the golas, that is, warehouses where salt is stored by the Customs Department, were filled to capacity and all shipments from the West Coast had to be cancelled for the second half of November and the whole of December 1945. For the first half of 1946, only one ship was berthed per month at West Coast ports for the transport of salt to Chittagong. I understand that the Bengal Government are de-controlling salt from the 5th August 1946. Salt manufacturers are now anxious to dump salt into Calcutta as soon as possible after the 5th August as they expect to get anything up to Rs. 360/- per 100 maunds as against the requisitioning price of Rs. 225/-. They had represented that they should be allotted five ships per month for the second half of 1946, but Government have sanctioned five ships for July and four per month from August onwards. I cannot say what will be Government's attitude if an interested party applies for permission to charter a foreign ship. If they refuse permission, they may be accused of trying to interfere with normal channels of trades. Chartering of foreign tonnage is likely to interfere with the efficient working of shipping control. In these circumstances, there can be no guarantee of return cargo of salt to maintain a shuttle service over any considerable period of time.

Question.—Is it possible to run a 'collier service' between Calcutta and, say, Bombay?

Answer.—Not unless we get a few tramps on the coast. If this happens, the collier service will probably be much cheaper.

Question.—We have been informed that a collier service running between two definite points, provided the distances are reasonably large, say about 500 miles, can be run fairly cheaply; it will take coal to one place and return empty.

Answer.—In my opinion, a collier service can be run only by tramps and not by a regular liner company. These tramps will be definitely cheaper. But the question is when will these tramps come round the coast.

Question.—But there are such services in other countries.

Answer.—Unless the licensing system disappears and ships are allowed to move freely, we are not likely to get a large number of tramps this side.

Question.—We have been told that the cargo priority system in force for shipping is responsible for some uneconomical working, especially in reference to coal cargoes. Is that correct?

Answer.—I should be surprised if the priority system interferes with cargo movements as a whole at all. In normal times, a liner company would prefer to lift coal during the off-season and the monsoon when other more remunerative cargoes are not plentiful and they have to carry coal or salt to cut losses. Under priority control, they have to lift coal and salt, according to the requirements of Government, whether they like it or not. But this does not mean shutting out of remunerative cargoes. This system of priority is not, in practice, very rigidly adhered to. We have to use our discretion at times and lift a lower priority cargo in preference to a higher priority cargo. For example, cement takes priority after cotton; but if cement is required most urgently, I try and provide for its early movement providing for cotton by a later opportunity. Now and again, the congestion at certain ports presents some difficulty in the timely movement of cargoes.

Section II

PROVINCIAL GOVERNMENTS



8. Written Evidence sent in by the Punjab Government.

QUESTIONNAIRE I

PART I—General (Last two paragraphs).

There can be no doubt that the conditions which led the two committees to make their recommendations still prevail, but it may be noted that the coal mining industry in the Punjab is yet in its infancy and whatever mines there are still utilise manual coal cutters. In view of these facts the various processes mentioned in these paragraphs cannot be appreciated by the mine owners of the Punjab.

PART II—Grading and Exports.

The Punjab produces a very small quantity of inferior coal which is generally used in local brick kilns and as such the question of grading or exports does not arise. During the period of war, efforts were made to utilise Punjab coal in certain industries and the experiment was successful to some extent, but its fusible and sulphurous character makes it unsuitable for extensive industrial use.

PART III & IV—Port & Railway facilities.

In view of the observations made under Part II above, no remarks are called for.

PARTS V, VI, VII & VIII.

The Punjab mines contain very thin seams of inferior coal which is extracted mostly by manual coal cutters. The points raised in these parts of the questionnaires are therefore not of much interest to the Punjab mines.

Question No. 36.—No.

QUESTION NO. 39—

An extract from the annual report, on the Mining conditions in the Punjab for the year 1944, relating to the educational facilities provided in the mining areas of this province is reproduced below :—

“The educational conditions at Khewra, Dandot, Choa Saidan Shah, Jutans, Rawal, and Ghalib-Wal in the Jhelum district were satisfactory, and there was a notable increase in attendance in all the schools which show that the miners were interested in educating their children. A. V. Middle School, Khewra has shown considerable progress and the miners have demanded to raise it to the high standard. No facilities for the education of children are provided in the districts of Mianwali and Shahpur”.

It is hardly necessary to add that the educational facilities so far provided in the coal fields are altogether inadequate and any steps towards improvement of this condition will be welcome.

QUESTION NO. 40—

The Labour in most of the Punjab mines is imported from the Poonch State. As these

miners are not used to the extreme hot climate of the province during the summer season, they usually return to the State by the end of April or May usually and do not come back till the advent of Winters in October. It is accordingly clear that no amount of facilities would induce them to settle permanently in the Punjab.

In the Makerwal collieries, however, (which are located in the Mianwali district) the labour employed is drawn from the adjoining villages. But due to scarcity of sweet water and excessive heat, they return to their villages during the summer season. If the difficult water situation is eased and sufficient facilities by way of sanitary accommodation, procurement of food on cheap rates etc., etc., are provided, they may give up their migratory character.

QUESTIONNAIRE II

*Questions 1 & 2.—*This section deals with the centralization of control over the coal mining industry. Views of the Punjab Government on this point have already been communicated to the Government of India, Department of Labour, in their letter No. 2275-S-I&L-45/11334-S, dated the 20th September 1945, copy enclosed.

*Questions 3 to 6.—*All the collieries in the Punjab are owned by Government and leased to private persons. A close alliance between units of coal production and consuming interests would certainly be a healthy and stabilizing factor.

*Questions 7 to 9.—*Do not apply to the Punjab because there is no private ownership of mineral rights in this Province.

*Question 10.—*State ownership of coal mines does not seem to be necessary in the Punjab where mines are very small and the quality of coal produced is poor but the State should certainly exercise effective control over production, distribution and marketing.

*Questions 11 & 12.—*The small mines in the Punjab have done considerable damage to the mineral by uneconomic and unscientific working. Mineral concessions should be given only to those persons who can afford modern equipment and trained staff. The Punjab mines mostly produce coal dust which was selling at Rs. 5 to Rs. 6 per ton during the years 1936 to 1939. The cost of coal per ton at pithead ranged between Rs. 2 and Rs. 2-8-0 per ton and the wages of labour per ton were between 12 annas and 1-2-0. The control price at pithead in 1945 was Rs. 20. The cost of production varied between Rs. 8 to Rs. 12 per ton and the wages paid to the miners ranged between Rs. 3-8-0 to 5-8-0 per ton. It may, however, be added that due to shortage

of labour and its migratory character the colliery owners cannot maintain a uniform output throughout the year and the overhead charges and advance payments to labour raised the cost of production of coal to Rs. 14 or Rs. 15 per ton.

Question 14.—In the Punjab most of the mining Labour comes from the Poonch State. These miners never settle down in the Punjab and are always anxious to return home as soon as they have collected some money. The methods of mining in the Punjab are extremely primitive and therefore working conditions are very hard indeed. Also mines are situated in out of the way places where amenities of life are not easily available. If living accommodation for workers and their families is provided near the mines and their necessities, such as food grains, cloth, oil, etc., are supplied to them at reasonable prices it may be possible to induce them to stay near the mines. The use of modern equipment is also necessary to increase the output.

Question 15.—The coal raising contractors have not improved output very much and the system has certainly resulted in un-systematic mining methods.

Question 16.—As far as the Punjab is concerned it is necessary to conduct an extensive geological survey of the coal deposits and to improve transport facilities for new coal fields.

Question 17.—Price control related to sale quotas for different mines fixed by the State would be the best thing at the present juncture. The supply being far short of the demand it is not necessary to have a central marketing agency for coal. The State should grade the coal and fix prices for the grade in consultation with the collieries and the consumers and the colliers should continue to deal with the consumers through their normal trade channels.

Questions 18—21.—The quality of the Punjab coal being what it is no useful comment can be offered on these questions.

Questions 22—28.—It would be good idea to pool railway freights so as to keep the price of coal

at various centres at the same level. Experiment has already been tried with some success in the case of iron and steel industry.

Questions 29—34.—As regards price of coal return to free competition is not desirable at present. The State should fix fair prices for each grade of coal in consultation with the colliery owners and the consumers. The Punjab coal is particularly suitable for low temperature carbonization and this industry can only flourish if prices are controlled by the State.

Question 35.—No relief is necessary as far as the Punjab mines are concerned.

Questions 36—37.—No comments.

Questions 38—49.—Metallurgical coal has not so far been found in the Punjab. The Punjab coal is mainly tertiary coal rich in sulphur content.

Question 50.—A very small quantity of steam coal of average quality is produced in the Punjab.

Questions 51—64.—No comments.

Question 65.—A list of mining leases granted during the years 1936—44 is enclosed. Concessions are granted on the terms prescribed in the Mining Rules.

Question 66.—Does not concern this Province.

Question 67.—The provisions of the Mining Rules are satisfactory.

Question 68.—In the Punjab the system of *salami* is not in vogue. Only royalty is charged according to the rates fixed in the Mining Rules.

Questions 69—71.—No comments. The question of fragmentation of colliery holdings does not arise in this province.

Question 72.—No useful suggestions can be made without an intensive geological survey.

Questions 73—74.—No comments.

Question 75.—The proposal has obvious advantages.

ANNEXURE REFERRED TO IN REPLY TO QUESTIONS 1 & 2 OF QUESTIONNAIRE II

Copy of letter No. 2275-S-I & L-45/1133/S, dated the 20th September, 1946, from the Secretary to Government, Punjab, Electricity and Industries Departments to the Secretary to the Government of India, Department of Labour.

*Subject :—*Regulation of mines and oil Fields and mineral development under Federal Control.

With reference to your letter No. M-155(1) I, dated the 17th July, 1945, on the subject noted above, I am directed to state that the Provincial Government are not in favour of the proposed legislation by the Government of India for the purpose of taking under their control the regulation and development of certain minerals of all-India and strategic importance. They consider that it is neither necessary nor expedient for the Government of India to take such a step as, in their opinion, Local Governments and Administrations are in a better position to exploit their mineral resources (especially in backward areas with a turbulent population) and to co-ordinate mineral development with agricultural and industrial development. They suggest the appointment of a Central Advisory Board for each important mineral or group of minerals to co-ordinate the activities of various provinces and States and to represent their interests for purposes of international agreements etc. The Advisory Board should have under their control a staff of technical advisors to whom provinces and states can refer their problems.

2. With regard to the reasons given by the Government of India in paragraph 4 of their letter for the centralisation of control the provincial Government observe as follows :—

(a) They are not convinced that co-ordination necessarily pre-supposes centralisation. Centralisation is an extreme step and co-ordination can be achieved better by mutual consultation. As far as mineral development is concerned there is a fair amount of uniformity in the procedure adopted by the various provinces as the mining concession rules published by the Government of India in the late department of Commerce and Industry resolution No. 7552-7581-121, dated the 15th September, 1913, as amended from time to time, are being followed by most of them.

(b) The difficulties mentioned in item (b) can also, as suggested above, be solved by setting up a Central Advisory Board for each important mineral or group of minerals.

(c) As regards item (c), though "Defence" is a Central subject, it does not necessarily mean that all the country's sources of production, mineral, industrial and agricultural etc. should be brought under central control. India is a very vast country and its problems and conditions vary considerably from place to place. The Provincial Governments are, therefore, in the best position to develop their own resources. Mere control by Provincial Governments over the grant of mineral concessions will not develop this industry to the extent desired and it is intended to establish it on sound lines due allowance will have to be made for the peculiar circumstances and special conditions of each region. In an outlying place like Makerwal all the technical experts of the Government of India can produce no results unless they have the co-operation and protection of the local officers who alone can keep the turbulent workers under control. The local Governments are thus in a much better position to exploit the mineral resources in such backward areas. Also they alone can best co-ordinate mineral industrial and agricultural development.

(d) As regards (d) there seems no reason why the Provincial Governments should not be able to provide the team of experts necessary for the consideration of problems relating to minerals. Now that the Provincial and State Governments have begun to realise the importance of exploiting their mineral resources there can be no doubt that they will provide the necessary technical Assistance.

3. Apart from these considerations, the proposed legislation cannot be regarded as a step in the right direction as it will amount to an encroachment on the autonomy of the provinces in the sphere of the mining industry.

4. In view of the reasons given above the provincial Government do not agree with the view that the centre should make use of constitutional powers under item 36 of the Federal Legislative List to take under Federal control the regulation and development of minerals of all India and strategic importance.

ANNEXURE REFERRED TO IN REPLY TO QUESTION 65 OF QUESTIONNAIRE II

Statement of mining leases for coal granted during 1936 and 1944.

Year	Serial No	Area.	Period.	Name of lessee/lessor
1	2	3	4	5
1936	1	420 acres in Dandot District Jhelum.	30 Years	L. Lekh Raj mining contractor Jhelum.
	2	133-86 acres in Shamilat Dandot	20 Years	L. Amar Nath Khosla.
	3	51-2 acres in Shamilat. Choa Saiden Shah Distt. Jhelum.	15 Years	M/s R. Mohd. Sarafraz Ali Khan and Shah Abdul Aziz of Chakwal.
	4	88 acres at Rakh Dandot.	20 Years	L. Ram Lal Chanda.
	5	50 acres at Shamilat Pidh & Dandot.	30 Years	Messrs. Amar Nath Sant Ram and Lakh Raj of Dandot.
1937	6	116-4 acres at Dandot	30 Years	M/s Wah Stone and Lime Quarry Ltd., & Pt. Gian Chand.
	7	100 acres at Ara Distt. Jhelum.	16 Years	Bukhsbi Jiwan Mal.
	8	180 acres at Rak Drongon Tahsil Chakwal, Jhelum Distt.	10 Years	M/s Chaman Lal Bhola & Sons.
	9	966-26 acres in Chuglan & Tola Mangali, Tehsil Isakhel Distt. Mianwali.	30 Years	L. Lal Chand Kalra.
	10	2028 acres near Village Chapri & Kotki, Tehsil Isakhel Distt. Mianwali.	30 Years	L. Lal Chand Kalra
1938	11	80 acres in Dandot	30 Years	M/s Wahstone Lime Quarry Ltd., and Pt. Gian Chand
	12	183-6 acres at Shamilats Choa Chhapar and Chhambhi	20 Years	The Chakwal Brick Company Chakwal.
	13	63-3 acres at Dandot	10 Years	L. Sant Ram Kapur.
	14	94 acres at Dandot	10 Years	L. Sant Ram Kapur
	15	54-5 acres at Rakh Dandot	25 Years	S. Jai Ram Singh
	16	1044-9 acres at Nallakhil, Tahsil Iskhela Distt. Mianwali	30 Years	L. Chuni Lal Kapur.
1939	17	1000 acres in Rakh Diljabha Tahsil Chakwal	30 Years	Messrs Charanjit Lal Jagan Nath.
	18	113-60 acres at Nali Tahsil Pind Dadan Khan Distt. Jhelum.	28 Years	L. Ram Avtar of Khewra.
	19	196-09 acres at Dandot	25 Years	M/s. Dalmia Jain & Coy. Ltd.,
	20	134-4 acres at Watli & Munhila Tahsil P.D. Khan District Jhelum.	28 Years	L. Ram Autar.
	21	1503-38 acres at Village Chapri & Chesima Tahsil Isakhel District Jhelum	30 Years	D. R. Kapur Mari Indus.]
	22	1777 acres and 3446 sq. yds. at Village Chasimia Tahsil Isakhel.	30 Years	L. Chuni Lal Kapur.
	23	1171-7 acres at V. Mallakhel, Tahsil Isakhel.	30 Years	Mr. D. R. Kapur.
	24	792 acres at village Tola Mandli Distt. Mianwali	30 Years	M/s Hari Chand Chhabra & Sons.
1940	25	204-6 acres Pid Tahsil P.D. Khan	30 Years	M/s. Sant Ram Amar Nath, Fazul Karim & Abdul Karim
	26	80 acres Shamilat Wahula & Dalwal Tahsil P. D. Khan	30 Years	M/s. Wah Stone & Lime Quarry Ltd. & Pt. Gian Chand.
	27	59-51 acres in Choa Saiden Shah and Chhapar Tahsil P. D. Khan	30 Years	M. Allah Din of Ratuohlu.
	28	98 acres in Kala Chitta Reserve Forest Tahsil & District Attoc.	30 Years	M/s Sunder Dass & Sons of Chakwal.
		(This has since been determined)		
	29	100 acres in Kala Chitta Reserved Forest	30 Years	Mr Allah Din of Ratucha.
	30	1236-5 acres Thathi & Dher Umed Ali Shah	30 Years	Pir Raza Mohd. Shah.
1941	31	117-54 acres Dandot Tahsil P.D. Khan	20 Years	L. Sant Ram Kapur.
	32	426-91 acres Shamilat Dalwal & Pad Shahpur Tahsil P.D. Khan Distt. Jhelum.	30 Years	S. Jai Ram Singh of Rawalpindi.
1942	33	80 acres near Pidh Tahsil P.D. Khan	15 Years	R.S.L. Ishar Das Kapur.
	34	63 acres near Pidh Tahsil P.D. Khan	10 Years	L. Sant Ram Kapur P.D. Khan.
	35	53-7 acres in Rakh Dandot	30 Years	L. Ram Lal Chhand of Tatral.
	36	179-08 acres near Wahali Tahsil P.D. Khan	20 Years	S. Jai Ram Singh of Rawalpindi.
	37	100 acres in Rakh Tahsil Chakwal	25 Years	Ditto.]
	38	156-8 acres Shamilat Kanjala Tahsil P. D. Khan.	20 Years	Ditto.

P 1	2	3	4	5
	39	54.5 acres Chao Ganjali Shah Tahsil Chakwal.	20 Years	Mir Wajad Ali Shah of Chao Ganj Ali Shah.
	40	240 acres Rakh Siruli South & Shamilat Karali.	20 Years	Messrs. Hari Chand Chhabra and Sons of Rawalpindi.
1948	41	50.1 acres Tehsil P.D. Khan Rakh Dandot.	20 Years	The Wah Stone and Lime Quarry Ltd., Pt. Gian Chand.
	42	53 acres Tahsil P.D. Khan Shamilat Chao Saiden Shah	15 Years	M. Allah Din of Ratucha.
	43	183.50 acres Rakh Nurpur Tahsil P.D. Khan.	20 Years	Bukhsli Gopal Das of Lilla.
	44	143 acres Shamilat Karuli Tahsil P. D. Khan.	20 Years	The National Coal Company, Chittidand.
	45	226.27 acres Tahsil Khushab Rakh Behot Distt. Shahpur.	20 Years	L. Daulat Ram Mehta.
	46	328 acres Rakh Behot & Pail Tahsil, Khushab, Distt. Jhelum.	30 Years	R. S. Malik Tara Chand & Sons
	47	127.07 acres Kala Chitta Reserved forest Jahsil, Distt. Attock.	30 Years	Messrs. Hari Chand Chhabra & Sons.
	48	166.67 acres near Village Thathi & Distt. Mianwali.	30 Years	Pir Raza Mohd. Shah.
1944	49	128.55 acres Shamilat Khajala Tahsil P. D. Khan.	20 Years	S. Jai Ram Singh, Rawalpindi.
	50	56.2 acres Rakh Dandot Tahsil P.D. Khan	20 Years	Ditto.
	51	66 acres Rakh Dandot Tahsil P.D. Khan	10 Years	The Wah Stone & Lime Quarry Ltd.
	52	51.2 acres Rakh Dandot Tahsil P.D. Khan	10 Years	L. Sant Ram Kapur.
	53	865.4 acres near village Shamilat Gharbi District Mianwali.	30 Years	Khan Khaliq Dad Khan.

Oral evidence of Mr. Gadkary, Deputy Chief Engineer, P. W. D. (Executive Branch), Punjab, on behalf of the Punjab Government.

Referring to the increase in power facilities in the Punjab, Mr. Gadkary stated that all projected developments are linked with the hydro-electric grid. The following table gives the name of the project and the planned output of electricity therefrom :—

NAME	CAPACITY.
1. Rasul Hydal Project	22,000 K. W.
2. Bhakra Dam (expected to be ready by 1956)	1,60,000 K. W.
3. Nangal Project (subsidiary scheme along with Bhakra Dam scheme)	40,000 K. W. In four 30,000 K. W. separate Stations
4. Two existing stations at Jogindranagar	Present capacity is 36,000 K. W. with additional capacity of 12,000 K. W. Two machines are to be added to increase existing capacity by 24,000 K.W.

The normal load on the Lahore Electric Supply Co., is 10,500 K. W. of which 7,500 K. W. is thermal and 3,000 K. W. hydro.

When the projects mentioned above are completed, they will displace thermal generation at Lahore completely. The thermal station in Sialkot is being taken over by Government and will be replaced by 600 K. W. set running on oil. The Lahore Electric Supply Company consumes about 120 to 140 tons of coal per day and the maximum saving in the Punjab of Bengal/Bihar coal is likely to be ultimately in the region of 50,000 tons a year.

The enormous amount of electricity generated will it is hoped be fully taken up by new industries, mostly small scale ones. There are also possibilities of developing the aluminium industry in the Punjab, which has certain aluminium ore deposits; iron ore deposits also exist. Power requirements might jump up by 30 per cent. in an year and a further annual increase in demand of 2520 K. W. is not improbable. The question of using hydro electricity for electrifying the railways can be considered only after 1956 when the main Bhakra Dam is completed.

Oral evidence of Mr. Vir Bhan (Deputy Director of Industries) and Dr. Bhattacharjee (Coal Research Chemist) on behalf of the Punjab Government.

The grant of prospecting licenses and certificates of approval in the Punjab is in the hands of the Government though orders are passed on the recommendation of the Director of Industries.

Applications are made to the Deputy Commissioner of the district concerned and he forwards them to the Director of Industries for orders. Prospecting licenses are granted only if the applicant has the requisite experience and adequate financial resources; in this matter no technical advice is necessary. Mining leases are granted only to holders of prospecting licenses and extend over periods varying from 20 to 30 years in the first instance. A few mining leases have, however, been granted for periods of 10 years also. The lease period is generally determined by the applicant's own wishes. In view of the peculiar working conditions in Punjab mines it is agreed that the grant of leases for short

periods may not be conducive of sound and economic working; but this desirable consideration has not so far been taken into account prominently.

2. Considerable coal resources lie unexploited in the Punjab but little work has been done by the Geological Survey of India in proving them. With a view to increasing coal production in the Punjab a proposal to create a provincial Survey Staff was made some time ago but nothing has been done so far.

3. No detailed survey has yet been made of the likely coal requirements of the Punjab. A number of post-war Industrialisation plans have been framed but it is not certain that the coal supply aspect has been clearly considered. An important additional coal requirement in the Punjab will arise from the 12 new Textile mills proposed to be installed in the Province.

4. In view of the considerable demand for coal for industries and inferior nature of the Punjab coal, the Provincial Government have initiated research with a view to determining whether and how Punjab coal could be used in greater quantity locally. Dr. Bhattacharyya, who has worked in Germany and America, has been placed in charge of this work. According to him little has been done so far in India in regard to the de-sulphurisation of high sulphur content coals. De-sulphurisation has been successfully achieved in America by the Thylox process and in Germany by the Threesin process. The experiments being conducted in the Punjab may produce positive results within a year or two when they will probably be published. At present the only large scale consumers who are using the Punjab Coal to any appreciable extent are the Cement Works and Brick Kilns.

5. Control over all matters relating to coal, as to other minerals, should vest with the Provinces. It is conceivable that with completely autonomous provinces, Bengal for example may refuse to supply coal to the Punjab but such a contingency need not be seriously considered.

6. The Punjab Government have taken no action so far with regard to the provision of better water supply at Mukerwal; labour is not of a settled nature and any large scale expenditure may not be justified. Initiative in this matter should come more appropriately from the mine owners themselves. Government have supplied cloth, Kerosene Oil and Foodstuffs to the labour during the war and by way of educational facilities, some primary and middle schools have been opened and set aside for colliery labour; more however are needed.

9. Written evidence sent in by the Govt. of Bengal (Commerce, Labour and Industries Department).

QUESTIONNAIRE I.

Q. 33.—It is settled law that title in the underground rights (rights in minerals) belongs to the Zamindar or to the subordinate tenure holder to whom such underground rights may have been expressly conferred by the Zamindar under

the items of the lease. The provisions of Section 84 of the B. T. Act refer to lands held by a raiyat or an under-raiyat to whom undergrounds rights are not conferred by lease. If, therefore, minerals are discovered in the sub-soils of lands held by a raiyat or an under raiyat, surface rights can be acquired under section 84 of the Act to enable the Zamindar or the tenure holder as the case may be, to work the minerals. The dual authorities of the Collector and the Civil Court under Section 84 may seem to be unnecessary; but nevertheless the procedure is a summary one and cases of acquisition under section 84 for the purpose of working sub-soil minerals are rare indeed. As such there is hardly a case for amending the section so as to make the procedure more summary.

Q. 39.—Last year there were 52 primary schools in the coal mine areas of the Asansol Sub-division with a total enrolment, of 2667 pupils of whom 1143 were miners' children. Recently 3 of these schools have been abolished. Besides these schools in the close vicinity of coal mines, there are other primary schools in distant villages, in which a sprinkling of miners' children receive education. With the introduction of the Primary Rural Education Act, more facilities will be provided.

Part of the teaching should be in upcountry dialects, if it is to be effective. The good features of the tea garden schools in Jalpaiguri may be adopted with advantage when schemes are prepared for providing greater facilities for education of miners' children.

Q. 40.—The migratory character of labour in coalfields is due to two main causes:—

- (1) the labour is generally not local and has deeprooted home-loving instinct.
- (2) colliery labour is unskilled and so unlike semiskilled mill workers, they are attracted by work in villages when they are bored with work in mines. Seasonal variations in the demand for coal are also partly responsible for occasional exodus of the miners to the fields.

A settled mining community may grow gradually if it be possible to create attractive conditions of living for them such as:—

- (1) Steady employment ensured by the industry and guarantee of adequate relief by the industry with subvention from the Central Government, if necessary, when there may be unemployment.
- (2) Remunerative wages.
- (3) Better housing with plots of land for kitchen gardening.
- (4) Education of the miners and their children.
- (5) Adequate medical and sanitary facilities and certain amenities of community life.

QUESTIONNAIRE II

Q. 7—The question of acquisition by the State of mineral rights has been examined by the Land Revenue Commission in paragraphs 118-121 of their Report. Bengal is primarily a permanently settled province—where the proprietors possess the under-ground rights. The main disadvantages under private proprietorship so far as minerals are concerned have been stated as follows:—

- (1) Under the present system wastage is prevalent and conservation from a national point of view is often neglected.
- (2) Owing to the necessity of taking leases from different landlords and the fact that the boundaries of the mines often follow entirely unsuitable Revenue Survey boundaries, many mines are worked uneconomically.
- (3) The number of grades of landlords between the revenue payer and the working company, all contending for royalties, have had much the same harmful effects as subinfeudation in land.

The Commission have advocated the acquisition of all mineral rights but they have made a distinction between the working mines and the mines not yet discovered. As regards the former, the Commission have recognised that the question of acquisition of royalties is a special problem and that if Government decide to investigate the acquisition of same, it will be necessary to consult experts as to the proper system of estimating the mineral assets and the amount of compensation that should be payable. As regards the latter, the Commission have recommended that Government should consider the desirability of legislation declaring that all minerals not yet worked or discovered will vest in the State. Government propose to implement the latter recommendation along with the recommendation for the acquisition of all rent receiving interests in agricultural lands.

Q. 35—In imposing road, public works and education cesses, no discrimination has been made against coal mines. And the legal competency of the Provincial Government to levy such cesses is beyond question. These impositions are not considered unreasonable.

Q. 73.—These cesses are assessed and realised by the Collector from the owner, chief agent, manager or occupier of the mines in two equal instalments. The proceeds from the road and P.W. cesses are ultimately credited to the District Boards and those from the education cess to the District School Boards. Under the present administrative structure of the province, no alternative arrangement can be suggested.

Q. 75—No. The activities of the Asansol Mines Board of Health, under the Bengal Mines Settlement Act should continue in addition to the activities of the bodies set up by

the Central Government. Recently the spheres of activity of Asansol Mines Board of Health and the Coal Mines Welfare Fund Advisory Committee have been provisionally settled in consultation with the Govt. of India, Department of Labour. Such Co-ordination is more desirable than any attempt at unification.

Oral evidence of Rai Bahadur Das Gupta, Major M. Jafar, and Messrs. R. C. Dutt, A. Karim and D. N. Ghosh representing the Government of Bengal.

Question.—Will you please tell us something about the question of mineral rights in this province?

Answer.—The Land Revenue Commission made certain recommendations on the subject. So far as acquisition of rights in minerals are concerned, the Commission made no recommendation whatsoever, because they considered it to be a subject akin to occupancy rights, and as they did not consider the question of acquisition of occupancy rights, they omitted consideration of the acquisition of mineral rights. But the Commission thought that royalty rights in minerals being on the same footing as the rent received by landlords from tenants, should be acquired. They made another recommendation viz. that the rights in minerals which have not yet been discovered should vest in the Crown. The previous Ministry examined these recommendations and tentatively accepted them.

Question.—We find that the Floud Commission recommended the acquisition of "all minerals not yet worked or discovered". So even minerals that have been discovered but not yet worked come under this category.

Answer.—I do not think that that was the interpretation intended. The present Government are re-considering the whole position, and they may not accept the previous Ministry's recommendation or what has been said in the Bengal Govt.'s reply to this Committee's questionnaire.

Question.—As regards the right to mineral in lands which are being worked to-day; we take it that the Bengal Government have no present idea of acquiring them.

Answer.—No. But Government are thinking of nationalising the whole thing, land and anything that lies in the land.

Question.—Are you in a position to tell us whether, in the event of the Bengal Government not acquiring mineral rights, they would agree to the Centre, the Centre of to-day or the Centre which may be existing in future, acquiring them?

Answer.—The Bengal Government intend to have full control over minerals. They are against handing over control to the Centre.

Question.—We have had no definite declaration from the Government of Bengal regarding enforcement of a uniform system of mining laws in this country. Is it your view that it is desirable to keep all powers in respect of mining laws, production, distribution etc. in the hands of the Provinces?

Answer.—Yes, but the existing laws will be enforced until such time as some other laws replace them.

Question.—At the present, the Provinces have no right to interfere in the enforcement of the Indian Mines Act. Do the Bengal Government desire to have their own sets of rules in regard to methods of working etc.

Answer.—They intend to have full control over mineral rights and mineral practices. The advice of this Committee or any other Committee will be very welcome to them.

Question.—Will they be prepared to fall in line with other Provinces or with the Centre in respect of uniformity of either control or procedure regarding the development of an important mineral like coal.

Answer.—Unless and until we know the decision of other Provinces, we cannot say whether the Bengal Government would fall in line with them.

Question.—It may be necessary to have some co-ordinated control or co-ordinated regulation of mineral development of the Provinces; that co-ordination is not possible unless some uniformity is achieved.

Answer.—For the mutual benefit of all. But we cannot say anything about that at the moment.

Question.—Is it the view of the Government of Bengal that there should be some control over mining leases in this Province?

Answer.—There are certain existing rules which are to be followed in granting mining leases, and they are being revised.

Question.—At present Government have no right to interfere in the matter of granting of leases by landlords. Is it the view of Government that the grant of leases by landlords should be controlled in any way?

Answer.—I doubt whether that can be done unless the whole frame work of procedure is changed. Bengal is in a different footing from the rest of the Provinces. Here there is no definite law on the subject, but the matter has gone up to the Privy Council in many cases, and it has been definitely decided that rights in minerals in permanently settled areas vest in landlords.

Question.—Taking the position as you state that mineral rights are inherently mixed up with surface rights of landlords in the permanent settlement, do you consider it advisable and feasible to control the grant of leases for the purpose of exploitation of minerals underground?

Answer.—Speaking personally, I do not know how we can interfere with their absolute discretion in the matter of granting leases, so long as the Permanent Settlement remains.

Question.—In your view it is not feasible. Is it also your view that it is not desirable?

Answer.—If it is in the interest of the country as a whole, surely there can be no objection.

Question.—Keeping in mind the development of coal mines in the permanently settled areas of Bengal, and the present state of coal mines and the coal industry in Bengal, do you think that some sort of control should be exercised by the Provincial Government in the matter of granting leases?

Answer.—Yes.

Question.—You are aware that there are quite a large number of coal mines which are of uneconomic sizes owing to the present indiscriminate system of granting leases. Fragmentation of these leases has occurred. Have you any solution for this state of affairs?

Answer.—Small fragmented holdings, as in the case of agricultural land, are evils, and should be done away with.

Question.—Short of nationalisation of mineral rights, is there any other solution in your opinion? Should they be made compulsorily to amalgamate with each other, and, if so, who should be the deciding authority?

Answer.—During the war everything was done under the Defence of India Rules, but in normal times we shall have recourse to the legislature. I doubt very much whether the legislature will agree to such a course. I think that will be too big a step.

Question.—Taking your argument a bit further your personal opinion is that acquisition by the State of mineral rights or nationalisation will also be too big a step?

Answer.—Of course. Control is the first stage.

Question.—Do you think there is any role for the Central Government to play in matters of health and education in the coalfields' areas.

Answer.—As matters stand at present, the Central Government must take a considerable part in provincial matters in the shape of advice, finance etc. In the present constitutional position, the Central Government have no responsibility as far as health matters are concerned. Their advice in the event of famine and epidemics will be valued.

Question.—Is it your opinion that in respect of labour, welfare, health, sanitation, education etc., Provinces should be permitted to carry on their own development work or improvement irrespective of what the Province next door does? Should there be no co-ordination?

Answer.—There should be, because there is no bar to an epidemic disease crossing from one Province to another. So there must be co-ordination between adjoining areas.

Question.—So you will have no objection if there were some sort of an advisory body to co-ordinate the activities of two Provinces in respect of public health matters and also in respect of educational matters?

Answer.—I do not know about educational matters, but as regards public health instead of an advisory body being set up, exchange of information would be enough.

Question.—Talking of cesses, there is the road cess. I believe it is collected on the basis of profits, one anna per ton on profits. Is there any real objection to basing this cess on despatches instead of on profits?

Answer.—The question was discussed by the Bengal Government, but a decision on it is pending. From the administrative point of view it is much better. We drafted a bill to amend the Cess Act in respect of assessment, but it could not be proceeded with.

Question.—If all the cesses, Central and Provincial, were unified, I do not say amalgamated, on a particular basis with the consent of all the Provinces, concerned and steps were taken to collect the amount through one agency, plus the obligation to distribute the collection pro rata to various Provinces, could you tell us whether that would be an improvement on the present methods of collection?

Answer.—Under Section 124 of the Government of India Act, a Provincial Government can be authorised to make collection on behalf of the Centre of assessments made by the Centre and *vice versa*. *Prima facie*, it strikes me as convenient.

Question.—Do you agree that in the case of a special industrial community such as coalmining labour community, the provision of extraordinary facilities are necessary, by way of health, medical facilities and education?

Answer.—Yes, but the actual burden should not fall on the ordinary Provincial revenue. Part of it should come from the Welfare Fund, and part should be provided by the industry itself.

Question.—You consider that, although the Provincial Government are quite ready to provide the necessary facilities for this particular community, the cost may be more than what they are prepared to bear for other communities in the Province and that the additional cost thereof should be met by the industry itself.

Answer.—Yes.

Question.—We would like to know of the plans of the Bengal Government, which would mean a very substantial increase in the demand of coal in the Province.

Answer.—Industries are increasing all over the Province and so there will be increase in the demand of coal. Unfortunately the Provincial Government have not as yet formulated large comprehensive schemes in regard to big industries. According to India Government's plans we have utilised 325,000 spindles for the expansion of existing mills and for the erection of 12 new mills. Some cement units and vegetable ghee manufacturing units have also been allocated to Bengal. Besides, we are pressing for another unit of the iron and steel industry in Bengal. The Panel has recommended that one more unit may be established in Burdwan Division.

Question.—It is rather surprising that you are asking for a steel unit, when there are several other industries which are lacking in the Province. We are interested with the programme as we are to find out additional requirements of coal in view of the development plan and, therefore, we will be grateful if you could give us specific details in respect of various schemes.

Answer.—It is difficult to give various details at this stage as all our plans are not complete. Besides Provincial plans will depend to a large extent on the policy and programme of the Central Government. In any case there will be developments in respect of the jute industry in newer lines, cement works, engineering industry etc. These developments will no doubt accelerate the demand for coal but the electrical development for which Bengal Government have a number of large scale schemes in view will ultimately reduce this increasing demand for coal.

Question.—Have you any views on the question of utilisation of coal as a source of power as against utilisation of hydro-electric power?

Answer.—We have a big scheme for a grid system. Schemes for installing a thermal power station near Asansol and Raniganj for the purpose of feeding industries are under consideration. Electrification of railways round about Calcutta is also envisaged, although the question has not been taken up with the Railway authorities. The whole question of electrical development in Bengal on a planned basis is under investigation.

Question.—There was a reference in the 1937 Coal Mining Committee's Report to Section 84 of the Bengal Tenancy Act and Section 50 of the Chota-Nagpur Tenancy Act, and the recommendation was that Section 84 of the Bengal Tenancy Act should be amended so as to allow of the same procedure for the acquisition of a holding or any part thereof for purpose of mining as is laid down in Section 50 of the Chota-Nagpur Act. I understand that the attention of the Bengal Government was drawn to this recommendation and the decision conveyed was that they did not consider the time opportune for such an amendment of the Act. Is that correct?

Answer.—I do not know whether Government took any decision. As a matter of fact Government do not undertake any amendment to an Act unless any defects are drawn to the notice of Government in the actual operation of the Act.

Question.—The Act came up for a comprehensive revision in other respects after the publication of the report of the 1937 Coal Mining Committee. Obviously this point escaped the attention of Government? Under the Chota-Nagpur Tenancy Act which is considered as a parallel to the Bengal Tenancy Act, the Bihar courts received every year 40 to 50 cases under Section 50 of the Act. Could you tell us the number of cases under Section 84 of the Bengal Tenancy Act?

Answer.—So far as Bengal is concerned, no application has come to our knowledge. As this Section does not cover acquisition of land for mining purposes, naturally no application has been made. So far as I can remember, the only district concerned is Burdwan, and we can find out whether there have been any cases on record, and if so what action was taken.

Question.—If Government takes over key industries and key resources, should they operate themselves?

Answer.—I cannot say how they will work mines if they are nationalised. The State itself may work them or they may have an agency to operate the mines.

Question.—Regarding the road cess, the burden on the colliery is not proportionately as the profits increase, and that if the profits are falling, the road cess collection increases. Would it not be an equitable procedure from the point of view of road development that the cess should be a uniform cess on despatches?

Answer.—Government decided that, from the administrative point of view of Government revenue, it would be better to have assessment based on despatches. That was decided, but actually nothing could be done.

Question.—As regards co-ordination between two neighbouring Provinces, we should like to ask whether the department responsible for either sanitation or education in Bengal keeps itself informed as to what is exactly happening in the neighbouring province of Bihar?

Answer.—There is a system of exchange of epidemic reports, monthly, fortnightly and weekly.

Question. Do you get any special statistical information about the coalfields, for instance?

Answer.—No.

Question.—The question of co-ordination or uniformity of control by a centralised machinery has been raised in connection with one or two questions. We can appreciate the position taken that the Government of Bengal desire to be absolutely independent in regard to questions relating to the coal industry. Apart from control over production and distribution of coal, certain suggestions have been made to have control over consumption, i.e., which particular types of coal should be permitted for particular uses. Supposing this is found necessary, which authority under your

scheme would be charged with this duty of exercising control.

Answer.—We have no scheme at present.

Question.—Do you not realise that it would be difficult to have an exclusively provincial control in a matter of this kind, because you are confined to your own sources of coal, and it may be that you will have to depend upon outside sources of coal for some of your needs?

Answer.—That is right. There would be no objection to co-ordination without powers of control. Where control comes in, we would object. That is the crux of the whole problems. Uniformity of procedure all over India in various provinces is essential and most desirable, but if it is going to be enforced by a Central authority I am sure the Provincial Government will raise objection.

10. Written evidence sent in by the Govt of Assam (Revenue Departments.)

QUESTIONNAIRE I

Question 1.—The Government of Assam would have no objection to a measure of Central Control over the development of mining leases provided that the Provincial Government revenues are not deprived of the receipts they now obtain from this source.

Question 36.—From every point of view, research for the maximum utilization of coal must be welcome. If and when the Garo Hills coalfields are developed, utilization of bye-products and minimizations of waste will be of special importance.

Question 40.—A great deal should be done to improve the conditions of labour, both housing, medical and educational. The extent to which the coal industry can itself reasonably be expected to bring about this improvement depends to a large extent on the future financial prospects of the industry, which are undoubtedly precarious, and especially in view of the possibility of a real effort to develop Hydro-electric power in Assam. The coal industry like other major enterprises in Assam is at present served almost entirely by immigrant, migratory and in many cases merely visitant labour, and the aim suggested by both the Provincial Coal Controller and the Labour Commissioner, Assam of inducing labour to settle on or near the coalfields depends for success partly on the local facilities, which in some cases will probably be found to be nil, and partly upon the prospect of such labour finding any inducements adequate for it to settle. This Government, do not think that stabilization can be easily achieved.

Question 39.—Regarding the improvement of educational facilities in Coalfields, the Government of Assam are of opinion that industries which are not managed by Government should be made responsible on the financial side, partly if not wholly, for the education of labour working in those areas.

QUESTIONNAIRE II

PART I

1. The Government of Assam has already agreed to the centralised control of coal and oil mines and such other minerals of national and strategic importance subject only to the right of the Provincial Government to appropriate the royalties and to select the lessees with whom leases should be issued to work the mines.

2. This is a question of detail which the Provincial Government would leave to the Central Government to solve.

PART II.

7—10—The permanently settled areas in this province total 6137 Sq. miles and free simple area 300 sq. miles, in both of which the land holders have got full right to the minerals. Government are not aware whether there are any mineral deposits in these lands but believe that if any exist they have not been worked to any extent. Although the question is of little importance in Assam with regard to coal centralised control as to the methods of working etc. without expropriating the land holders would in Government's opinion be desirable. The question would assume greater importance in Assam as regards rights in oil which can hardly be worked by individual small land holders.

The following is an extract of the analysis.

Locality	Moisture	Ash	Volatiles matter moisture less	Fixed carbon	Calorific value	Remarks
Baljong (Upper seam)	3.53	9.06	43.99	43.41	7457	Sulphur = 3.06 %
Baljong (Lower seam)	2.91	3.40	33.50	60.19	7809	Sulphur 2.14 %
Dogring (Lower seam)	3.03	3.88	34.81	58.28	7782	Sulphur 2.38 %
Waimong (Upper seam).	1.49	6.21	51.32	40.98	8130	Sulphur 3.30 % Caking
Chutmang Hongsapal	2.62	0.90	42.46	53.96	..	strongly Caking.
Right bank of Simasang above Siju	3.00	2.26	41.78	52.94	..	Ditto.
Dapsi river N. of Dapsi Khosagiri East of Dapsi	1.64	8.68	58.50	31.18	..	Ditto.
Thologiri	1.40	2.36	41.76	50.48	..	Ditto.

Government propose to lease out untapped areas to applicants as and when they come forward. One applicant named Mr. Hutchinson of Calcutta has already recently put in for a prospecting license with a view to extensive de-

PART VI

65.—Four leases were issued during this period. Details are given in the statement enclosed.

66.—The mining leases issued by the Government contain no provision for the methods of working.

67.—None.

68.—Yes Government agree that the Central Government may take power to standardise rates of royalty and regulate Salami but this Government do not agree to the abolition of Salami altogether.

69—70.—No fragmentation of holding has so far come to the notice of the Government.

71.—Government will not object to legislation for ensuring that the areas leased in future are of proper economic size. The problem, however, does not exist in Assam.

72.—Yes, in the Garo Hills District of this province there are several untapped or rather partially exploited and important coal bearing areas in the lower Eocene Cherra (Tura) sandstone stage. Two leases have been issued by the Government. One area has not yet been worked and the other only partially worked and Government are enquiring the reasons behind the partial working. The coal is however not of good quality on account of the high percentage of Sulphur in it.

velopment of coal and limestone areas in these Hills.

73. The Provincial Government do not levy any cess except only royalty and dead rent and are unable to offer any useful suggestion.

(ANNEXURE REFERRED TO IN REPLY TO QUESTION 66 OF QUESTIONNAIRE II).

Statement giving details of leases issued.

Name of district Tahsil, Taluk Vill or Village.	Name of Applicant.	Mine-rale.	Nature of grant P/L. or lease.	Area.	Date of commencement of Licence or lease.	Duration of Licence or Lease.	Dead rent per annum.	Surface-rent per acre per annum.	Royalty per annum.	Remarks.
1. Garo Hills	Messrs. A. K. Bhattacharjee & Md. Haniff Ltd.	Coal.	Mining lease.	1048.50 acres.	1-6-44	30 years	Rs. 1114/2/- including local rates of Rs. 65/9/-	Rs. 1/- per acre.	Coal-5% of the sale value at pits mouth or 4½ annas per ton whichever is greater. Coal dust-half the rate of coal.	
2. Garo Hills.	The Associated Cement Co. Ltd.	Limestone, Coal & Clay.	Mining lease.	891.6 acres.	*	30 years	Rs. 892/- plus Rs. 27/14 local rates.	Rs. 1/- per acre.	4½ annas per ton or 6% of the pitmouth value whichever is greater on all coal. 2 annas 3 pice per ton or 2½% of pitmouth value whichever is greater on all coal dust.	* The lease will be operative in its entirety from 1st January of the year following the termination of hostilities.
3. Sibhanger-Mikir Hills	Raisahib P. C. Roy.	Coal.	Mining lease.	1684.20 acres.	..	30 years.	Rs. 1/- per acre.	Rs. 1/- per acre.	Coal- 4½ annas per ton. Coal dust at annas 2½ per ton.	
4. Mr. Bhari	Mr. Bhari-rath Mutha	Coal.	Mining lease.	2 sq. miles	21-9-40	30 yrs.	Rs. 1/- per acre	Rs. 1/- per acre.	Rs. 5/6 per ton.	

Written Evidence sent in by the Government of Assam (Chief Inspector of Boilers).

Questionnaire II.

Question No. 16.—Deficit in production can be made good by enforcing users to follow advice given in various Fuel Economy pamphlets. Some owners who followed a few of the instructions profitted considerably, saving 20 to 25 per cent of fuel bill. With the cessation of war there has been a general feeling that coal would again be plentiful and there exists no further necessity for war time economy measures. Economy campaign must be carried right through.

Question No. 18.—The complete regulation of the use of different coals for different purposes is essential but machinery to implement this can only be advisory at earlier stage. Necessary equipments are not available to all users to utilise low grade fuel. Low grade fuel must be dirt cheap to encourage its use at a great distance from colliery.

Along with complete analysis of all Indian coals investigation into the behaviour of different coals in industrial furnaces are to be carried out. This should not in any way defer the working of control.

Question No. 19.—I am in favour of general regulation of the use of coal in industries though I consider Railways can play a great part in saving campaign.

Question No. 20.—I favour grading of coal for internal consumption. In case, any of the three alternatives, is decided Local Government shall have a Coal Controller whose responsibility would be to ensure correct coal being supplied to or used by industries.

Question No. 22.—My suggestion, always, was that distribution should be on zonal basis.

Question No. 23.—Pooling of rail freight will be necessary for the success of zonal distribution

Question No. 24. Fixation of rail freight for all qualities of coal is advantageous for Railways but a revised freight policy is necessary for the success of control of graded coals.

Question No. 51. High grade steam coal should be used in Locomotive and crane boilers. In stationary land boilers lower grade of coal can be used.

Question No. 52.—Restriction will be in the form of control of graded coals for Industries,

Question No. 53.—For steam coals, I do not think state ownership and control are necessary at this stage.

Question No. 61.—There are advantages in the use of pulverised coal or colloidal fuel. Big industries can derive benefit from their use. For medium powered factories, efficiency of utilisation with mechanical stokers and various travelling cranes is equally great. Use of pulverised coal is advantageous from the point of conservation as coals that could not be used in stokers may be used in pulverised form.

Question No. 62.—Power stations in the coal field will produce cheap power which will be a great fillip to the electrification of railways. Steam Locomotives, considering power losses in shunting in different stations use only 5% of the heat value of the best coal and as Railways consume a fair share of good quality of coal most uneconomically electrification will mean great conservation of national assets.

Question No. 64. Carbonisation industry utilises 75% of heat of coal where as best power stations will probably utilise 20%. If not for other reasons for best coal economy and efficiency coal for the distillation industry should receive special consideration.

WRITTEN EVIDENCE SENT IN BY THE REGIONAL COAL COMMISSIONER, DEPARTMENT OF INDUSTRIES AND SUPPLIES (THROUGH THE ASSAM GOVERNMENT).

Questionnaire II.

Part I (1).—I consider that the Central Government should now enact legislation to rest in itself the power to regulate mines and mineral development and to control the distribution of coal. This is necessary in order that the country on the whole is able to conserve coal resources and thereby utilise the respective grades of coal to the best of advantage.

In view of the anticipated short fall in production of high grade coals, it will, therefore, be necessary for distribution to be under the control of a Central Organisation in order to arrange the zoning of transport and allot coal to the best of advantage according to grades.

Part II (6).—The Indian Government Railways operating their collieries has to some extent in the past been the cause of a depression in the coal markets thereby creating certain uneconomic factors in the coal industry.

If the state is to continue operating these collieries without causing economic disturbances, it therefore necessitates the continuance of control from the Central Government.

(14) The question of improving output of the Indian Coal Mines has recently received a considerable amount of attention and in Assam the low output per man is due to very difficult mining conditions combined with absenteeism either through sickness or through the lack of thrift on the part of the work-men.

To effect an improvement it is necessary to apply (a) good Anti Malaria Control and Sanitation with adequate medical attention (b) provide consumer goods necessary for a better standard of living (c) educate the personnel to appreciate the necessities of life and (d) apply, if possible, bonus systems for attendance at work.

(15) In Assam the system of coal raising contractors has helped in maintaining output by keeping their own respective communities together and assisting with their welfare.

(16) Coal mining in general is an arduous occupation apart from the degree of danger and in consequence, the mining personnel should have better basic wages compared with workmen in other industries.

The basis should be such as to be inducive to persons to take up the work of coal mining for a livelihood.

This of course would only be an immediate remedy but it is also necessary that the application of machine mining methods be considered wherever possible in order that the output per man at the coal face can be increased accordingly.

Part IV (50).—Assam Coal is considered to be high grade steam raising coal with a high calorific value equivalent to that of Welsh Steam Coal.

Physically the coal is soft with a tendency to disintegrate and in consequence, approximately 50 per cent of the run of mine coal is produced in the form of dust.

None the less, this coal has proved to be a first class steam raising coal used to advantage by Railways, River Steamers and the Tea Industry.

(51) There cannot help but be considerable waste when coals like Assam Coal, of high volatile content, are utilised and in the ordinary furnaces for steam raising.

Better efficiency could be obtained by using in a pulverised form but this would entail expensive plant which would be of little advantage to the average consumer.

Once low temperature carbonisation is a successful proposition, then high volatile coals can be utilised to full advantage by extracting certain by-products, leaving a residual colloidal fuel which could be used for both industrial and domestic purposes.

(61) In view of the above reference, I do consider that it is necessary for action to be taken regarding the carbonisation of the high volatile coals such as those produced in Assam.

As no developments have yet been taken in this direction, it is my opinion that the matter should receive consideration as soon as possible. Many valuable by-products would be obtained and the residual fuel would still be suitable for industrial and domestic purposes.

Part VII (72).—There are at present in Assam two untapped deposits of coal in (a) the Mikir Hills and (b) The Garo Hills.

At present the development of both fields is under consideration and it is expected that in the former coalfield approximately two millions tons of workable coal are available while in the latter 1,000 million tons of coal is present in the area of which 500 million tons can be won by suitable methods at a reasonable cost.

ORAL EVIDENCE OF SIR HAROLD DENNEHY AND MESSRS. A.G. PATTON, M.H. HUSSAIN, S.K. DATTA, A.H.S. FLETCHER AND F.E. CORMACK, REPRESENTING THE GOVERNMENT OF ASSAM.

Question.—Will you please elucidate your general views on the Committee's questionnaires?

Answer.—Any discussion on major points has to envisage what the future constitutional position will be. If we knew the answer to this question, we might be clearer in our ideas.

Question.—The Indian Coalfields' Committee do not know what constitutional changes will take place and we must stick to our terms of reference based on the existing constitution. You have stated in your written reply that the Government of Assam would have no objection to a measure of control by the Centre over mining leases provided the Provincial Government are

not deprived of the revenues they now obtain from this source. Is this still the view of the Government of Assam ?

Answer.—Yes.

Question.—The regulation of mining methods for safety is a matter for the Central Government at present. Have the Provincial Government any objection to that being continued ?

Answer.—We agree to the continuation of the present practice.

Question.—On the question of research in coal, the Central Government has already started a Fuel Research Institute. Experiments so far conducted show that it is possible to reduce the sulphur content in Assam coals without destroying the coking properties. Should the Central Government wish to impose a cess for research on an all-India basis, would the Provincial Government object ?

Answer.—This Government cannot object, and the Central Government can utilise the proceeds of the cess in the manner thought best by them. We agree that it would be proper to centralise research work instead of appointing expensive officers in Provinces. On the analogy of the excise duty on oil which now goes to the Central Government, we have no say in that of a cess on coal. But if, due to constitutional changes, the Centre gives up its excise revenue and the power of imposing excise duties reverts to Provincial Governments, the position will be different.

Question.—Do you generally follow the Central Government's directives in connection with the welfare of coal mining labour ?

Answer.—The coal industry can be compared to the tea industry in this respect, conditions being similar in many ways. In both the industries there is provincial legislation in regard to the control of immigration, but there is a lack of specific legal provisions concerning welfare. The Provincial Government feel that welfare measures should be tackled by themselves. Regarding improvement in educational facilities in the coalfields, we endorse the views expressed in our written statement that the Government of Assam are of opinion that industries which are not managed by Government should be made responsible on the financial side, partly if not wholly, for the education of labour employed in the industries.

Question.—In Bengal the Floud Commission Report is under consideration, and one of the recommendations of the Committee is that rights over undiscovered minerals should vest in the State. Has the Assam Government any views on this ?

Answer.—Almost all the districts in Bengal are permanently settled, and there is a record of the rights which accrue to the landlords in those districts. Sylhet and Goalpara are the only two districts coming under permanent settlement in Assam. In Sylhet we never had a settlement, and until interests are recorded, it is impossible to envisage buying them out. Government have

never exercised their rights to minerals in these districts, and the Secretary of State in 1880 or thereabout disclaimed any intention of enforcing such rights. Between 1862 and 1865 a number of "fee simple" grants were made, chiefly to tea gardens, but one includes a coal mine, where Government parted with all their rights, including mineral rights, and no royalty was payable on minerals found in such land. In one such tea garden at Badarpur oil was found, and all the royalty went to the proprietor, and not to Government.

With regard to the grant of mining leases, the previous Ministry approved of Central control, provided that the Centre did not propose to interfere with their sources of revenue in the shape of royalty and left them the discretion of selecting lessees. We are agreeable to have a uniform rate of royalty in all Provinces, but as conditions differ so much from Province to Province, we doubt whether it will be practicable.

We must also lay stress on one more aspect. If the natural resources of coal are pooled on an all-India basis, the question of the Provincial Government's share in the profits should also be considered in the same way. In the case of the oil excise duty we have to give up what we consider to be our right in the oil. The excise powers lie entirely in the hands of the Central Government which is reluctant to part with even a fair proportion of the revenues according to the origin of the mineral.

Question.—It has been brought to our notice that many interests are retaining land but refrain from conducting general or chemical surveys of coal in the property. What will be your attitude if the Central Government were to take up those surveys ?

Answer.—The Provincial Government would welcome any surveys that the Central Government may take up, provided there is no vested interest of the Central Government.

Question.—Has there been any difficulty in the past about recognising a colliery company's requirements of surface land as a proper purpose for action under the Land Acquisition Act ?

Answer.—We have had no difficulty in coal areas. The whole difficulty has been in oil areas. Under a section of the Assam Revenue Regulation, swift operation in the matter of surface acquisition is possible so far as oil companies are concerned.

Question.—On the question of leases, has there been any objection raised to the restriction of the lease period to 30 years, renewable for a further period of 30 years ?

Answer.—No representation has been made to us.

Question.—Could you tell us something about your various development schemes ?

Answer.—The biggest development in Assam is expected to be in the Garo Hills area, and I understand that this might be developed side by side with hydro-electric power, especially as

the coal is suitable for certain chemical industries, particularly carbide. We were recently advised that the best thing would be to start with a nursery thermal scheme to serve a suitable experimental area. There is also a scheme for developing hydro-electric power from the river Someshwari by building a dam. We are due to have 4 cotton mills, 2 sugar and alcohol factories, one paper mill, and two or three jute mills in the province. These will be fully state-owned, though private enterprises may be given a managing agency to work them.

Question.—Have your Government any proposal to nationalise coal mines ?

Answer.—Originally Government proposed that new coal mines should be fully state-owned. On re-consideration, they have come to the view that they should join hands with private enterprise to work new coal mines. They are not so much interested in coal as a primary product as in its use for industrial purposes, and they would rather see that coal is not exploited at all than exploited for sale outside the province as a raw material. The Assam Government have not considered the question of taking over any of the existing coal mines on payment of compensation.

Question.—In your written statement you have not agreed to the abolition of salami altogether. What is the reason ?

Answer.—There is no provision in the Mineral Concessions Manual for “salami”. In a recent case the royalty rate per ton of coal was increased from the usual rate of 4½ annas to 5½ annas in lieu of payment of “salami”. Whether or not “salami” will be charged in future leases is a point for consideration.

Question.—You import about 25,000 tons of coal from Bengal and Bihar for tea gardens per year. As you want to regulate the production of your coals to such an extent that imports from outside the Province may not be necessary, can you cover the whole Province with the output from your existing mines ?

Answer.—If Garo Hill and Khasi Hill coals can be made available for the plains, it will greatly diminish the import of coal from Bengal. Steamer services are already using Khasi coal to a great extent. For some time to come, at any rate, coal will have to be imported from Bengal and Bihar.



11. WRITTEN EVIDENCE OF THE SECRETARY TO THE HON'BLE THE AGENT TO THE GOVERNOR GENERAL, RESIDENT & CHIEF COMMISSIONER IN BALUCHISTAN QUETTA.

The inquiry of the Committee was limited to the coalfields of Bengal, Bihar and Central Provinces and consequently did not provide for in investigation into conditions in Baluchistan.

I append below replies to Questionnaire I. The conditions which impressed the two Committees to recommend control by State over method of extraction, first working etc. still prevail in Baluchistan.

Due to the following reasons the action taken by Government in increasing the powers of the Mines Department and by establishing the Coal Mines Stowing Boards has not resulted in any improvement in Baluchistan :—

- (i) Due to difficult working conditions, the type of labour available, and difficulty in obtaining mining staff trained in modern methods, the method of working is primitive.
- (ii) The seams outcrop in the hills and have a thickness of between 15" and 4'-6" with an inclination varying from 45° to the vertical and the mines vary in distance from 2 to 20 miles from Railway loading depots.
- (iii) The mines are situated in tribal territory and the labour who are tribesmen are difficult and undisciplined.
- (iv) Transport from the mine to rail-head is by means of a combination of animal transport and lorries over difficult hilly country.
- (v) Approximately 85% of the Baluchistan coal is produced in the form of dust.

The coal from Quetta District disintegrates into dust on exposure to atmosphere. The Sibi District supplies coal with approximately 20 per cent steam and Mach District produces approximately 10 per cent steam coal.

- (vi) The market for Baluchistan is uncertain. The use of Bengal coal is popular and is comparatively cheaper due to easier mining conditions and great advantage obtained by the telescopic principle of rates which the Railway apply to the transport of coal. The owners are consequently loath to risk capital in development on modern lines.

A rough estimate shows that workable reserves of coal in Baluchistan amount to 150 million tons. The annual raisings of coal for the last ten years are shown in the list below :—

1936	..	..	..	8,099 tons.
1937	...	...	..	17,519 "
1938	...	...	..	21,894 "
1939	...	...	..	25,684 "

1940	..	...	..	19,020 tons
1941	...	...	..	22,670 "
1942	...	...	..	35,677 "
1943	..	...	..	56,627 "
1944	...	..	..	87,500 "
1945	...	...	..	1,38,912 "

Raising for the first three months of 1946 amounted to 80,490 tons.

The chief factor which brought about the increase in raisings is the demand for Baluchistan coal and we consider that the first action of the Government is to ensure a market for Baluchistan coal. Experiments have proved that very good briquettes can be made from all Baluchistan coals and it is considered if more and/or larger briquetting plants were installed in each of the districts the fuel demand of Punjab and Sind could be met from Baluchistan.

- I(2) Baluchistan coal has not been exported out of India.
- II(3) No comments.
- II(4) No comments.
- II(5) No comments.
- II(6) No comments.
- II(7) Baluchistan coal has not been graded. We suggest that all Baluchistan coals may be graded under the Coal Grading Board Act.
- II(8) Grading of coal for the internal market is desirable and we suggest it should be made compulsory.
- II(9) No comments.
- III(10) No comments.
- III(11) No comments.
- III(12) No comments.
- IV(13) No comments.
- IV(14) No comments.
- IV(15) No comments.
- IV(16) No colliery undertaking possesses a private weigh-bridge.
- IV(17) No comments.
- IV(18) No comments.
- IV(19) No comments.
- IV(20) All wagons are loaded by hand. There are no mechanical loading appliances in use in Baluchistan.
- IV(21) No comments.
- IV(22) No comments.
- V(23) The pits mouth figures as given by the mine owners in 1935 show the estimated cost at Rs. 7/8 per ton and in 1939 at Rs. 6/8 per ton. The average costs for each district (in wagons) are shown by the following figures supplied by Messrs. R.S.Tikam Dass & Sons :—

Quetta.....Rs.9/7 per ton.
Mach..... Rs.7/12 "

Degari.....	Rs.9/-	per ton.
Harnai.....	Rs.7/6	"
Sharigh....	Rs.8/2	"

The present pits mouth control rate of all Baluchistan coals is Rs. 15/8 per ton for dust and Rs.71/8 per ton for steam. F.O.R. rate at Quetta is Rs.29/12 per ton, Mach Rs.24/8 per ton and varying between Rs.20/- and Rs.27/- per ton in Sibi District. The Administration have no figures of working cost but it is estimated that the owners work on a profit of about Rs.2/- to Rs.3/- per ton in each of the districts.

V(24) Mechanical coal cutters have not been used in Baluchistan (in this connection please see reply to No. 1 above).

V(25) As explained in reply to No. 1 of the Questionnaire coal has been worked to the dip from the outcrop : consequently rails have not been used. Where the coal is extracted by mean of adits, rails have been laid and working costs have been reduced.

VI(26) No comments.

VI(27) No comments.

VI(28) No comments.

VI(29) No comments.

VI(30) No comments.

VII(31) No comments.

VII(32) No comments.

VIII(33) No comments.

VIII(34) An ' OVOID ' Briquetting plant manufactured by Messrs. YEADON SONS & CO. purchased from Messrs. Shaw Wallace & Co., Managing Agent of the Nazira Colliery Co. Ltd., Assam was erected in Quetta. The plant has a capacity of approximately 8 tons per hour and commenced operations in August, 1945. A total of approximately 8,000 tons was manufactured upto the end of January 1946. Experiments to ascertain the correct proportions of the binding mixture of pitch, cereal and lime with coal from each of three Coal districts of Baluchistan, namely Quetta, Mach and Sibi, showed that a good quality briquette could be made from all coals in Baluchistan. The approximate proportions of the components are:—

Coal	.	.	.	.	90%
Pitch	.	.	.	.	5%
Cereal	.	.	.	.	4½%
Lime	.	.	.	.	½%

The briquettes made from Baluchistan coal are satisfactory as a domestic fuel and for use in boilers as steam raiser.

In view of the long railway haul from Bengal coalfields it is for consideration whether the requirements of Sind and Punjab would justify the installation of a similar plant at Mach for export to those two provinces.

The war time cost of the components delivered at the Briquetting plant is high i.e. coal at approximately Rs. 30/- pitch a Rs. 180/- and condemned *atta* at Rs. 80 /- per ton each and results in the working cost of the brequettes at approximately Rs. 48/- a ton. It is anticipated that cost will be considerably reduced when conditions return to normal.

Briquetting Plant owned by Mr. F.B. Patel of St. John Steam Mills. Quetta.

This Plant was manufactured by Ukside Engineering Co., in 1893 . The Plant is stated to have a capacity of manufacturing 5,000 briquettes sized 6" X 5 " X 6 ½" in a working shift of 8 hours. One ton averages 450 briquettes.

The Plant was assembled in July 1943 and after complete overhauling in August 1943, Briquetting tests on dust coal from the various Baluchistan coalfields were commenced. The addition of 10% pitch to the dust coal produced the best briquette, and consequently this ratio was adopted.

618 tons of briquettes were manufactured upto March, 1944. The work was again started in October 1944 and upto 31st March, 1945 about 805 tons of briquettes were made.

The briquettes were not of good quality and were not popular: Consequently work of the plant ceased after March, 1945.

VIII(35.)—Baluchistan coal has not been washed, and we have no comments to offer in this connection.

VIII(36.)—It is suggested that the Fuel Research Institute may conduct researches into the suitability of pulverised coal from Sor Range mines of Quetta. In this connection a copy of letter No. 113-C.W./155, dated the 12th January, 1921 from the Agent, G.I.P., Railway, Bombay, to the Agent, N.W.R. Lahore is appended below :—

" REPORT ON THE TRIAL OF PULVERISED COAL FROM THE SOR MINES, QUETTA.

In continuation of my letter No. 113-C.W./143 dated 23rd November 1920 , I beg to inform you that practical test of coal received from the Sor Mines was carried out during the last week. The engine used made two trip with this coal which burnt freely, and no difficulty was experienced in maintaining any desired pressure.

I regret we were not able to arrive at any results regarding the fuel and water consumption, as difficulty was again experienced in the working of the fuel feed screw.

It would appear to be essential that the Sor Coal should be passed through a magnetic separator before pulverising as it was found to contain large particles of iron "

The Indian Mines Coal Committee may investigate the possibilities of supplying a market in

Sind and Punjab by encouraging the conversion of boilers for the use of pulverised fuel.

VIII(37).—There are no bye-product plants in Baluchistan.

VIII(38).—The coal seams at Khost were exploited by the North Western Railway upto 1924 and it is understood that two or three explosions were caused by 'fire-damp', the last of which occurred in 1923 after which the mines were closed. The Associated Cement Cos., Ltd., Bombay have leased to the east and west of the mines worked by the Railway. Presence of 'fire-dap' has not been reported in these new areas since the associated Cement Cos., commenced work in 1945.

The existence of 'fire-damp' has not been reported from any other district in Baluchistan until March 1946 when small percentages were detected in lease No. 120 worked by the administration at Sharigh.

Faint traces of Sulphuretted Hydrogen and Sulphur-di-Oxide have also been detected in this area when the workings are below water level. There are great reserves of coal above water level consequently the extraction of coal below water level is avoided.

There are at present no rescue arrangements existing in any of the Baluchistan coalfields. It is, however, suggested that the opinion of the Mines Inspectorate of the Government of India may be obtained in this connection.

VIII(39).—The available educational facilities for children comprise one Primary School at Sharigh and one at Hanna near Sor Range; also a Lower Middle School at Mach. The children of local labour—comprising Pathans, Hazaras and Bruhis take advantage of the existing facilities.

The mines in Baluchistan are situated in tribal-territory and with the exception of approximately 200 Mekranis who have their families residing near the Railway stations, the bulk of the labour force is composed of male migratory labour from Afghanistan and Swat. The question of providing further educational facilities for miners depends upon future developments of the Post-war Reconstructin of the Industry in Baluchistan.

VIII(40).—At present a high proportion of the tribal inhabitants of Baluchistan is nomadic and under present conditions it is unlikely that labour from Swat and Afghanistan will leave their native homes and settle at the mines; consequently until the mining industry in Baluchistan is placed on a firm foundation it is not considered likely that these tribes could be converted into a settled mining community.

This Administration is anxious that the coal mining industry in Baluchistan be provided with facilities to develop on a permanent basis and the assistance in this direction, of the Indian Coal fields Committee is anticipated at an early date

QUESTIONNAIRE II I CONSTITUTIONAL

Question 1.

We consider that the Central Government should control production of coal and that the Provinces should distribute the coal made available by the Central Government.

Question 2.—

We are unable to pass an opinion whether it is necessary that the Department should also deal with petroleum and other minerals.

II.

ECONOMICS OF THE COAL INDUSTRY.

Question 3—6.

No comments.

Question 7.

Does not apply to Baluchistan.

Question 8—9.

No comments.

Question 10.

We consider the system of private ownership should continue but that the State should exercise control over production, distribution and marketing.

Question 11 (Finance).

The present problem in Baluchistan is not 'finance', but to maintain the market which already exists for Baluchistan coal. The maintenance of the market now must precede the modernizing of the industry.

Questions 12—15.

No comments.

Questions 16.

Some of the discrepancies between the coal requirements of the country and the coal available for disposal may be made up by further development of the outlying coalfields such as Baluchistan., Punjab and perhaps Assam.

Question 17—(i) We do not consider a Central Marketing Agency under Government Control desirable

(ii) We consider a system of price fixation allied to Government-controlled distribution adequate.

(iii) We suggest the grouping for distribution of Baluchistan, Punjab and Sind.

The Central organisation would collect information of the amount of coal available and the coal would be allocated to the provinces according to their needs. The collieries and the proprietors would have to supply figures showing their estimates of future outputs and would have to despatch coal in accordance with the instructions issued. Consumers of coal would intimate their requirements to the Provincial Controllers and the merchants or brokers would facilitate

payment to collieries and arrange supplies for consumers.

Questions 18—21.

We are not in a position to reply.

Questions 22—28.

The telescopic rate principle applicable at present to the transportation of coal by Railway will almost certainly work to the detriment of Baluchistan coal mining industry.

Question 29—34

While the demand for coal is in excess of production we consider it necessary that the Central

Government should fix the prices of coal in the various coalfields.

Questions 35—64

No comments.

Question 65.

Listed details of coal leases granted in Baluchistan from 1936 to 1945 are enclosed.

Question 66.

The Central Government Mining Rules do not provide for 'in stroke' and 'out stroke' working and the effect of the omission is that lessees have extracted practically all outcrop coal to a depth of 300 ft.

ANNEXURE REFERRED TO IN REPLY TO QUESTION 65 OF QUESTIONNAIRE II

Listed details of leases granted in Baluchistan from 1936 to 1945

S. No.	Lease No.	District in which situated	Dimensions.	Area	Date of grant	To whom granted
1	115	Sibi	3600' x 968'	80 acres	1-7-36	R.S. Tikamdass
2	116	Sibi	4000' x 1000'	91.8 "	1-7-36	P. Nanakehand
3	117	Mach	3600' x 968'	80 "	1-7-36	R. S. Tikamdass
4	118	Mach	3600' x 968'	80 "	1-1-38	Mullick Wilayat Hussain
5	120	Sibi	3600' x 968'	80 "	1-7-38	Ditto.
6	128	Quetta	5280' x 1320'	160 "	1-7-38	M/s. Sorabji
7	126	Quetta	2680' x 1300'	80 "	1-1-39	R.S. Tikamdass
8	130	Mach	3600' x 968'	80 "	1-1-39	Ditto.
9	112	Mach	4000' x 1000'	91.8 "	1-7-36	Mr. F.B. Patel
10	124	Mach	3900' x 1300'	118.6 "	1-1-40	M. Wilayat Hussain
11	131	Mach	5280' x 1320'	160 "	1-1-40	R.S. Tikamdass
12	133	Sibi	4000' x 1000'	91.8 "	1-1-40	Ditto.
13	134	Sibi	5280' x 1320'	160 "	1-1-40	Mir Jalad Khan
14	135	Sibi	5280' x 1320'	160 "	1-1-40	Ditto.
15	136	Mach	1936' x 1800'	80 "	1-1-41	R.S. Tikamdass
16	137	Sibi	6000' x 2000'	275.48 "	1-1-40	M. Paind Khan
17	138	Sibi	6000' x 2000'	275.48 "	1-1-40	M. Paind Khan
18	139	Mach	3960' x 990'	90 Acres	1-7-40	R.S. Tikamdass
19	140	Sibi	3600' x 968'	80 "	1-1-41	Do.
20	141	Sibi	3600' x 968'	80 "	1-1-41	Do.
21	142	Sibi	3600' x 968'	80 "	1-1-41	Do.
22	143	Quetta	..	80 "	1-7-41	B. Budh Singh
23	145	Sibi	4000' x 1000'	91.8 "	1-7-41	P. Nanak Chand
24	146	Sibi	4000' x 1000'	91.8 "	1-7-41	B. Budh Singh
25	148	Mach	..	177.45 "	1-7-41	R.S. Tikamdass
26	156	Sibi	3600' x 968'	80 "	1-1-40	Do.
27	40	Quetta	..	87 "	1-1-41	Do.
28	49	Sibi	5280' x 1320'	160 "	1-1-41	Do.
29	50	Sibi	5280' x 1320'	160 "	1-1-41	Do.
30	56	Sibi	5280' x 1320'	160 "	1-1-41	Do.
31	61	Sibi	5280' x 1320'	160 "	1-1-41	Do.
32	18	Quetta	..	80 "	1-7-41	Do.
33	58	Quetta	..	149 "	1-1-41	Do.
34	59	Quetta	..	149 "	1-1-41	Do.
35	154	Sibi	..	80 "	1-1-42	Do.
36	155	Quetta	1970' x 1780'	80 "	1-1-42	Do.
37	157	Mach	3600' x 968'	80 "	1-10-42	Do.
38	158	Sibi	3000' x 2323'	160 "	1-1-43	Mr. I. S. Macmull
39	149	Sibi	3600' x 968'	80 "	1-7-42	Mullick Wilayat Hussain
40	150	Sibi	3600' x 968'	80 "	1-7-42	Do.
41	151	Sibi	3600' x 968'	80 "	1-7-42	Do.
42	152	Sibi	3600' x 968'	80 "	1-7-42	Do.
43	153	Sibi	4000' x 1000'	91.8 "	1-1-43	Mr. I.S. Macmull
44	159	Mach	5280' x 1320'	160 "	1-7-43	R.S. Tikamdass
45	160	Sibi	..	128 "	1-6-43	Do.
46	161	Sibi	3600' x 968'	80 "	1-6-43	Do.
47	162	Sibi	4000' x 1000'	91.8 "	1-7-43	M/s. Rannarain Satyapal

S. No.	Lease No.	District in which situated	Dimensions	Area	Date of grant	To whom granted
48	163	Mach	2800' × 1244'	80 Acres	1-1-44	B. Budh Singh
	165	Mach	3600 × 968'	89 "	1-1-44	M/S. Ismailjee
50	166	Mach	6000' × 1500'	207 "	1-1-44	M. Wilayat Hussain
51	168	Mach	2640 × 1320'	80 "	1-1-44	Do.
52	73	Quetta	..	28.4 "	1-4-44	Do.
53	77	Quetta	3400' × 2175'	169.96 "	1-4-44	Do.
54	91	Quetta	..	80 "	1-4-44	Do.
55	98	Quetta	2574' × 2530'	149.5 "	1-7-45	R.S. Tikamdass
56	113	Quetta	2530' × 1856'	107.8 "	1-7-45	Do.

Lease that were cancelled.

Serial No.	Lease No.	Year of cancellation
2	116	1945
17	138	1944
19	140	1943
20	141	1943
21	145	1945
24	146	1944
39	139	1943

Present ownership of certain leases.

Serial No.	Lease No.	Present owner
5	120	Baluchistan Administration
13	134	Mr. K. A. Marker
16	137	K.B. Sardar Ghulam Mohammad Khan Tarin
26	156	Baluchistan Administration
38	158	Associated Cement Cos.
41	151	Baluchistan Administration
43	153	Associated Cement Cos.

For practical purposes all the 56 leases in the list may be termed as old as workings had at some time or other been worked from the outcrop to various depths upto 300 feet.

Leases are granted in accordance with the provisions of "The Mining Concessions (Central) Rules, 1939 and the Standard Forms of Prospecting Licence and Mining Lease" (copy enclosed).

Oral evidence of:—

1. Mr. I.S. Jain, Assistant Regional Coal Controller in Baluchistan, Quetta, representing the Baluchistan Administration.
2. R.S. Pritam Das of firm R.S. Tikamdass & Sons, Quetta.
3. Mullick Wilayat Hussain of firm Mullick Wilayat Hussain & Sons, Quetta. } Nos. 2 and 3 — representing the industry.

The main coal-bearing areas in Baluchistan are the Sor-Range, Degari, Mach, Sharigh, Khost and Harnai. Some of these areas are really in the Kalat State but the control over prices etc. is exercised by the Baluchistan Administration. Inclines have been driven into the coal seams and the 'pillar and stall' system is in vogue. In recent years attempts have been made to work at depth by driving adits and laying track etc. therein. The open cast mining is not practicable in view of the thinness and high inclination of the seams: the thickness varies from 1' to 4½", the average being 3'. The percentage of extraction in first workings is about 25 to 30 .85% of the coal raised is in the form of dust because it is of later formation and belongs to tertiary age and is high in moisture and sulphur content. Mach,

Degari and Sor-Range coal can be placed in Grade III; whereas the analysis figures of Khost and Sharigh coal have shown a wide variation in the quality, ranging from Grade III to Selected. Sharigh and Khost coals exhibit coking properties whereas coals from other fields in Baluchistan do not appear to exhibit such properties (As regards the coking properties and grading of Baluchistan Coal your attention is invited to this office letter No. A/80/MM*, dated 1-7-1946).

From the point of view of output, Sor-Range and Mach are at present the most important areas and are considered profitable fields. Reserves up to 3,000ft. depth along dip of seams estimated as a result of Geological Survey in regard to the existence and continuity coal seams are about 150 millions tons as follows:—

Sor-Range	30 to 32 millions tons
Degari	15 "
Mach	76 "
Sharigh	28 "
Khost	1/2 "
Harnai	8 "

Raisings in the entire area during 1945 were 138,912 tons as against 116,000 tons available with the Committee: the latter probably excluded the output from mines in the Kalat State (Your attention is again invited to this Office letter No. A/80/MM, dated 1-7-1946).

In 1946 up to the end of May the raising has been 1,11,108 tons and it is reasonably expected that the output for the whole year would be about 250,000 tons. The maximum output in this area could be placed at 300,000 tons p.a. under present circumstances and with existing equipment of mines. The installation of machinery could bring about a further increase.

Baluchistan Administration has fixed the pit-head sale price of coal at Rs. 15/8 per ton for slack and Rs. 17/8 per ton for steam. This includes labour, royalty, timbering, staff, profit etc. the royalty for slack and steam is -/6/- and /14/- per ton respectively. A very heavy item of expenditure is the cost of transportation of coal (1) by means of animals from adit and incline mouths at hill tops to lorry stands and (2) by means of lorries from lorry stands to railway stations in some cases 15 to 20 miles away from the mine. Excluding the cost of bags etc. the present cost of animal transport from pit mouths to lorry stands is about Rs. 4/8 per ton.

The installation of aerial ropeways should reduce this cost but no survey has been made so far and nothing can be undertaken unless an assured market for Baluchistan coal exists.

*Not printed.

In Baluchistan itself the Baluchistan slack coal is used mainly for brick kilns and for briquetting. The steam coal recovered is used for domestic purposes and for feeding boilers of Briquetting Plant and flour-mills etc. Major portion of the output of the Briquetting Plant goes to the Indian Base Supply Depot, Quetta and the rest is sold to Government offices and public for domestic use. In Baluchistan itself about 15% of the total output of coal is consumed. About 80% of the coal goes to the Punjab and the balances to Sind. There is no prospect of any appreciable increase in the demand for coal in Baluchistan itself.

The Railways and Military in Baluchistan are important consumers but the former are unable to use Baluchistan coal because of its high sulphur content. About 25 years ago the G.I.P. experimented with pulverised coal from the Sor Mines with satisfactory results but nothing had come out of this. The cost of briquetting coal is about Rs. 48/- per ton against the controlled selling price of Rs. 55/- per ton. Formerly an old plant was being used but since March 1945 a comparatively new and up-to-date one has been obtained and is working. No experiments have been made so far on the possibility of making briquettes without a binder. There is probably a market for the briquettes in the Punjab and Sind in Ginning Factories and for domestic purposes.

No coal from Bengal/Bihar normally come to Baluchistan except for Railway and for the heating installation of the Combined Military Hospital, Quetta Cantt. The telescopic rate is working to the detriment of Baluchistan coal industry.

As to the facilities necessary for developing coal production, the essential requisites are an assured market, supply of plant and machinery (i.e. boilers, pumps, haulage engines, ropes etc.) and of trained personnel.

Mr. Jain, speaking about the administration of coal mines, stated that before the office of the Regional Coal Controller was opened, a Sub-Inspector of Mines (holding a Second Class Certificate used to assist the Revenue Commissioner in Baluchistan in the consideration of applications for leases etc. Laterly the Regional Coal Controller has been advising the Administration. There is no indication yet as to the machinery that will be set up when the Coal Commission's Organisation is disbanded.

R.S. Pritam Das and Mullick Wilayat Hussain stated that the trade was in favour of central control over all the aspects of the coal industry.

Only 43 of the properties leased are actually producing coal now. The others do not work for various reasons: the principal ones being that either no workable coal seams were discovered in the leases or if discovered there was scarcity of labour. The minimum area for a lease is 80 acres and this is considered sufficient for profitable working. The maximum area is 320 acres. No other restrictions are placed on the grant of mining leases except that the applicant should possess a certificate of approval granted by the Local Administration and should be financially and otherwise sound. R.S. Pritam Das and Mullick Wilayat Hussain stated that if an assured market were found for Baluchistan coal the trade would almost certainly go in for haulages and in view of the considerable cost, the period of a lease would have to be at least 99 years. They also added that it would also then become necessary to lease out larger areas than 80 acres. As the present areas being worked are economic, it is not necessary to amalgamate the ownerships of the different adjacent blocks on the plea that they cannot be properly developed.

As regards the guaranteed market, Messrs Jain and Wilayat Hussain stated that no coal should be allowed to come into Baluchistan from outside at least for an initial period of 15 to 20 years but preferably for all time. Arrangements will also have to be made to give Baluchistan coal a preference over Bengal/Bihar coals in the Punjab and Sind. There should be a remunerative controlled price for coal and the disadvantages, from Baluchistan's point of view, of the telescopic system of railway freight rates should be removed.

Colliery labour comes mainly from Afghanistan, Swat and Mekran and a little is available from the Punjab. As to labour welfare the Administration has taken certain Anti-malarial measures though these are not confined to colliery labour only, efforts are also made to provide consumer goods and in particular increased quota of sugar which is keenly sought after.

De-sulphurisation of coal:

Nothing has been done in regard to the de-sulphurisation of Baluchistan coal.

.....

On a query by the Committee as to why the pit-head raising cost of coal was so high in Baluchistan Mr. Jain replied that the labour was very costly and the mining conditions were very difficult as the seams were very thin and highly inclined and nature of roof and floor very bad, requiring lot of timbering etc.

12. WRITTEN EVIDENCE SENT IN BY THE GOVERNMENT OF BIHAR (LABOUR DEPARTMENT)

Questionnaire No. I.

Question No. 1.—It is difficult for the Provincial Government to give any fully considered answer to this question as they are not directly concerned with the working of the coalmines. It is however the tentative opinion of the Provincial Government that whilst the action referred to in the question has certainly achieved something further progress towards the amelioration of the conditions mentioned in the question is probably necessary.

Question No. 33.—In the time available Provincial Government have not been able to find evidence of any great past difficulties. The Government of Bihar do not consider it necessary to amend the Chota Nagpur Tenancy Act any further for colliery purposes. Section 50(i)(b) of it already provides for the acquisition by the landlord on his application of lands for the purpose of mining or for any other purpose declared by the Provincial Government to be subsidiary thereto or for access to the land used or required for such purpose. The Land Acquisition Act moreover is sufficiently expeditious for normal peace-time purposes and the procedure under section 17(i) can be applied in the case of colliery acquisitions so long as coal production is of vital importance.

Question No. 36.—It is not known if the proposed Fuel Research Institute will have any section for research on low temperature carbonisation of coal. This Government has set up a plant for low temperature carbonisation and it would be helpful if the low temperature tars obtained can be fully investigated on a large scale in the Fuel Research institute.

Question No. 39.—There are at present 3 High, 18 Middle and 375 Primary and 9 Special Schools in the Bihar coal-fields. The number of primary schools noted above includes 20 recognised colliery schools a few of which receive aid from Dhanbad Local Board. In addition to these 20, there are 35 unrecognised colliery primary schools. A proposal to raise one more U. P. School to middle school status and three more lower primary schools to upper primary school status has been sanctioned. Sanction has also been given to the amalgamation of 9 lower primary schools with existing upper primary schools. The provision for primary education in the coal-fields is made by the local bodies concerned. Government are paying a recurring grant of Rs. 5,000/ a year to the Hazaribagh Mines Board for primary education. A non-recurring grant of Rs. 12,000 was paid to the local board in the Hazaribagh District in 1944-45 for the construction of school buildings.

As regards improvements, there is nothing at present under the contemplation of the Government for the coal-fields specifically. As a measure of post-war development government have earmarked an additional sum of Rs. 10 lakhs for the improvement of primary education in the province. This

will be distributed among the local bodies on a population basis. After the Government have approved the schemes the local bodies in the coalfields will receive their shares of this additional sum which are due to them according to their population figures.

Big colliery proprietors have done something for providing facilities for elementary education for the children of miners, but not very much.

The Government of Bihar suggest that the following improvements should be made in regard to education in coal-fields.

(1) In addition to the present facilities something should be done for adult education.

(2) A certain measure of compulsion should be introduced facing people in the mining area who are particularly backward in this respect to put their children in schools.

(3) The Coal Mines Welfare Committee should (a) enforce the Statutory Rules regarding the provision of educational facilities by the colliery owners, (b) have a thorough and proper census of the children of school-going age in the coalfields and (c) take steps for the opening of additional colliery schools, if the existing colliery and non-colliery primary schools do not meet the present demands.

Question No. 40.—It is probably not desirable to divorce the mine labourer completely from the land and certainly this cannot be done unless there is security against his being transferred to an urban slum.

It settled communities of mining labour are desired decent housing conditions with a small cultivable area of land for each family for use as an allotment are primarily desirable. Security of steady employment, stabilised wages, reasonable hours and conditions of work, proper medical facilities, pit head changing rooms and baths, playgrounds and social amenities like institutes and clubs are also essential. Sickness insurance schemes would almost certainly combat migratory tendencies effectively by making it unprofitable for labourers to return to their village homes in cases of illness. Mechanisation in the pits with a view to making the mine labourers work less arduous and safer is also very desirable.

Questionnaire No. II.

Question No. 2.—The question of the regulation of mines and mineral development has already been taken up by the Central Government, in their letters Nos. M-155(1)1, M-155(1)2 and M-155(1)3 all dated 17th July 1945. The Government of Bihar therefore prefer not to express at present a final opinion on a matter which is under the consideration of the Government of India in consultation with the Provincial Government. Tentatively, however the Provincial Government is of opinion that the principle of central regulation of mines and mineral development as well as the control of the production and distribution of coal is desirable provided that any revenues

now derived by the Provincial Government from these minerals (including coal) are not interfered with. As regards the detailed distribution of powers between the Centre and Provinces, the Provincial Government do not feel that they are at present in a position to express an opinion.

Question Nos. 7 to 10.—The Provincial Government do not consider that the acquisition of mineral rights by the State is practicable so long as the present zamindari system continues. With this system in force in a greater part of the area in which minerals exist in Bihar, Government are

of the opinion that the best solution would be strict control of mining leases and of mines, of the working and living conditions of the miners together with Government control over labour welfare activities and labour matters generally. That is, the Provincial Government consider that there should be strict State administration of coal bearing properties.

Question No. 65.—A statement of new leases granted is given below. With the exception of serial No. 19 these are all petty leases.

Serial No.	Name of district, tehsil or taluk and of village or villages.	Name of applicant.	Minerals	Nature of grant.	Area	Date of commencement of the lease.	Date of the lease.	Cost of dead rent per annum	Royalty per annum	
1	2	3	4	5	6	7	8	9	10	11
1	District Santal Parganas, Rajmahal Damin, Mauza Kesofull, Kesofull coal pit.	Babu Manik Maripur.	Coal	Mining lease.	15 Kathas	1-4-44	2 years.	160	Annas 2 per ton	
2	Do. Mauza Chalpahari, Chalpahari coal pit in the Gedda, Damin-i-keh Govt. Estate.	Babu Jagannath Bhagat.	"	"	2.10 acres	1-8-45	"	130	"	
3	Do. Mauza Sarsabad, Sarsabad coal pit No. III in the Dumka Damin-i-keh Govt. Estate.	"	"	"	2.84 acres	20-2-45	"	585	"	
4	Do. Mauza, Damanpur, Damanpur coal pit No. II in the Dumka Damin-i-keh Govt. Estate.	"	"	"	4.30 "	"	"	1301	"	
5	Do. Mauza Sarkhi, Sarkhi coal pit in do.	"	"	"	5	"	"	220	"	
6	Do. Mauza Chandramali, Chandramali coal pit in do.	"	"	"	3 Bhigas.	"	"	40	"	
7	Do. Mauza Chilge, Chilge coal pit in the Pakaur Damin-i-keh Govt. Estate.	"	"	"	2.15 acres.	"	"	384	"	
8	Do. Mauza Dhankutta Ghatehora do No. I in Dumka.	"	"	"	5 acres	"	"	385	"	
9	Do. Mauza Damanpur, Damanpur No. II do.	"	"	"	3 Bhigas.	"	"	1810	"	
10	Do. Mauza Candrop Candrop No. I.	Babu Romeahwar Marwari Darji.	"	"	5 acres.	"	"	135	"	
11	Do. Mauza Sarsabad, Sarsabad do. I do.	Babu Bansil Ram Marwari.	"	"	5 acres.	"	"	585	"	
12	Do. Mauza Bhalgora, Bhalgora do. subdivision in the Godda.	Babu Lachman Hundah.	"	"	4.17 "	15-9-45	"	525	"	
13	Do. Mauza Amarpur, Amarpur do. in the Godda.	Babu Debi Parsad Marwari.	"	"	1.45 "	1-9-45	"	470	"	
14	Do. Mauza Gandrep, Gandrep coal pit no. I in the Damin-i-keh Govt. Estate.	Babu Chakar Hembrum	"	"	.5 "	"	"	80	"	
15	Do. Mauza Dhawpahari, Manikba - than coal pit in the Godda do.	Babu Jagannath Bhagat.	"	"	.38 "	1-7-45	"	585	"	
16	Do. Mauza Churi Churi coal pit No. I in do.	Babu Ramautar Ram Marwari.	"	"	4.54 "	19-6-45	"	611	"	
17	Do. Barge coal pit in do.	Babu Jagannath Bhagat.	"	"	1.20 "	1-7-45	"	585	"	
18	Do. Mauza Sarsabad, Sarsabad coal pit No. II in the Dumka Damin-i-keh Govt. Estate.	Babu Bansil Ram Marwari.	"	"	1.62 "	1-10-45	"	605	"	
19	District Palaman, Barichatan Block A and Bahhandih (Kutar coal field).	Meers. Sene Valley Portland Cement Co. Ltd.	"	"	1189 "	1-4-45	30 years.]	<p>(i) For the first year of the lease, Rs. 9 an acre per year and thereafter Rs. 2 an acre per year.</p> <p>(ii) For the next 4 yrs. the rate of the sale value at pit's mouth or annas four a ton which ever is the greater is half of this rate from coal dust.</p> <p>Surface coal Rs. 1.</p>		

Questionnaire No. 1

Question Nos. 67 and 68.—Provincial Government have no comments to make at present on the matters referred to in these questions. As no complaints about the existing rules have been made in the past by the local officers it is presumed that the existing rules in this respect are working satisfactorily.

WRITTEN EVIDENCE SENT IN BY THE GOVERNMENT OF THE CENTRAL PROVINCES AND BERAR

Question No. 1.—The conditions still prevail but some improvement has been effected as a result of action taken by Government on the recommendations of the previous two committees.

There is little doubt that the powers given to the Mines Department and the establishment of a Coal Mining Stowing Board have done some good but not to the desired extent. This Government considers that further action is necessary to save the wastage of coal which is a valuable national asset by controlling depillaring and rotation of working, particularly where there are several coal seams in a coal-bearing area. The creation of a Statutory Authority for the purpose of securing the amelioration of existing conditions in coalfields is also necessary.

Question No. 2.—It is not necessary to take any special measures for pushing Indian coal in foreign markets. Under no circumstances should coking coal be exported abroad or wastefully used at home.

Question No. 7.—It is considered that re-grading of coal should be confined to seams as a whole and not to sections of seams as is done at present under the Coal Grading Board. The latter practice has perhaps done more harm than good and much valuable coal has been lost in this way.

Question No. 18.—At present sufficient siding facilities are not available to many collieries in the Pench and Kanhan Valley areas, specially to smaller ones. Railway communication is also not available for large coal-bearing areas in the Korba Zamindari in the Bilaspur district, Korea and Sirguja States which are awaiting development. Pathakhara as well as other coalfields in the Betul district are also not provided with railway communications. Lack of communication has hampered and will hamper development of these areas. I am to enclose* two sketch maps showing the existing railways and suggested railway communications indicated in pencil. When the projected C.I.C. railways are completed, parts of the Sirguja coalfields could be opened up and branch lines would have to be provided for opening up of the adjacent coalfields in that area.

Question No. 20.—Collieries equipped with screening plants cannot adopt mechanical loading devices if covered wagons are supplied for loading by the railways. But if covered wagons are provided with an opening at the top with a portion of the roof sliding it may facilitate mechanical loading even with covered wagons. The railways would, however, have to design his type of wagon.

Question No. 21.—General development in favour of mechanisation is desirable and is possible also. Mechanical coal-cutters have replaced manual coal cutting to a very limited extent and wherever this has been done greater output and reduced cost have been achieved. With the introduction of sand-stowing there is greater scope for the introduction of mechanical coal cutters and loaders in collieries.

Question No. 25.—There would generally be ~~saving~~ in raising costs if rails are laid up to the working face. The time and energy which the miners waste at present in pushing their empty tubs to their working places would be saved and a higher output per man per shift could be achieved. Wherever this facility has been obtained, raising cost has generally decreased.

Question No. 35.—The results of experiments on coal washing in India have proved encouraging. It has now been definitely proved that if coal containing high percentage of ash is washed, 70 to 80 per cent of the total output containing comparatively low ash percentage can be obtained. The remaining 20 to 30 percentage with high ash content can be used for colliery consumption and for boilers. This should make it possible for inferior coal to be used for railways and industries other than iron and steel instead of using metallurgical coal which should, in the opinion of this Government, be carefully conserved for the iron and steel industry.

Question No. 36.—It is suggested that safety in Mines Research Board should also be established along with the Fuel Research Institute. The

latter institute should be mainly concerned with the fuel problems of the country. But the improvements in the methods of working timbering, depillaring in collieries and in many other technical aspects of practical mining can only be achieved if research for the improvement of these operations is carried out as is being done in other countries.

It is necessary that the Provincial Government and the coal industry in different regions should be consulted from time to time while drawing up the programme and plan of research to be carried out at the Fuel Research Institute. For instance in the case of Central Provinces coal with its generally non-coking properties, high volatile and high ash percentage, investigations into the possibility of its better utilization by washing or other suitable methods, high and low carbonisation and processing for production of metallurgical coke, would be welcome. Researches into methods of using this coal for purposes for which it is not used at present would prove valuable for the industry in this Province as also elsewhere.

Question No. 39.—The Pench Valley which is the chief coal mining area in the Province is served by an independent Mining Local Board. This body is responsible for primary education in that area and at present 16 primary schools, one complete and two incomplete middle schools are run by this body. The area under the jurisdiction of the Board covers about 175 villages with a population of about 70,000. The present number of schools is by no means adequate for the needs of the population and the Education Department of this Government is examining the question with a view to providing greater facilities. The chief obstacles in the way of the Board's activity in spreading education have been insufficiency of funds and if grants could be provided for the purpose out of the Mines Welfare Fund it may go a long way in helping the Boards to extend educational facilities. One of the questions under investigation relates to the type of education that should be imparted and the curricula in the higher classes so that the education that is made available in mining areas may be of use to the miners of the future.

There is also a small industrial school run at Chandameta near Parasia. The school is partly financed by Government and provides instruction in Carpentry and Blacksmithy. Some time ago mining classes used to be run but they had to be closed down. It is suggested that the Mines Welfare Fund should meet the cost of:—

- (a) Evening Mining Classes for men working in collieries and,
- (b) Exhibition of "safety first" films to miners showing how accidents in mines happen and how they can be prevented.

This has both entertainment and educational value. A mobile cinema van can go from colliery to colliery showing these films. Accident rate in mines can be appreciably decreased by this method as has been amply proved in other countries.

Question No. 40.—Mining labour has to work under trying conditions and unless amenities and decent return for labour are provided it is not possible to secure a stable and contented labour force. The present migratory habit is a result of lack of amenities and if recreational facilities are provided and social life is improved it may be possible to get the labour force to stay. The first essential is better housing and sanitation, improvement in wages through attendance bonuses and concessions dependent on attendance and the introduction of Provident Fund and holidays with pay. In some of the larger mines, facilities to a limited extent do exist but greater facilities on a uniform scale are needed if those employed on mining are to be encouraged to stay permanently and to regard mining as their one vocation.

WRITTEN EVIDENCE OF THE GOVERNMENT OF
THE CENTRAL PROVINCES AND BERAR
REVENUE DEPARTMENT.

Questionnaire II.

I am directed by the Governor of the Central Provinces and Berar to refer to your letter of the 18th February 1946 in continuation of your letter No. 14(1)/ICC/45, dated the 1st February 1946; and to enclose copies of the replies received from the Mining Adviser to Government, Director of Industries and the Labour Commissioner. On the constitutional question raised in part I of the questionnaire, this Government has already communicated its views to the Government of India in the Labour Department in its letter No. 7858-2201 XIII, dated the 14th September 1945, a copy of which is enclosed for ready reference. This Government has no particular observations to make at this stage in regard to the other matters appearing in the questionnaire as the replies received from the Mining Adviser, Director of Industries, and the Labour Commissioner, are under consideration. Meanwhile to avoid delay, the replies received by this Government are being forwarded in original; and it is hoped that the information supplied will be found useful.

No. 7858-2201-XII-7.

GOVERNMENT OF THE CENTRAL PROVINCES AND
BERAR REVENUE DEPARTMENT.

From

L.R.S.Singh, Esq., I.C.S.,
Secretary to Government,
Central Provinces and Berar.

To

The Secretary to the Government of India
Department of Labour,
NEW DELHI.

Dated Nagpur, the 14th September 1945.

Subject:—Regulation of Mines and Oilfields
and minerals development under
Federal control-petroleum-mica.

Sir,

I am directed by the Governor of the Central Provinces and Berar to refer to your letters

Nos. M 155(1)I, M155(1)II and M155(1)III dated the 17th July 1945, and to say that the Provincial Government accepts the principles underlying the general policy outlined in your letter No. M155(1)I of the 17th July 1945.

2. In regard to the points raised in paragraph 2 of your letter No. M155(1) I of the 17th July 1945. I am to say that the Provincial Government accepts the view that:—

- (a) the Centre would now make use of the constitutional powers under item 38 of List I to take under Federal control the regulation and development of minerals of all-India and strategic importance.
- (b) the procedure outlined in paragraph 2 appears to be suitable, and
- (c) the minerals mentioned in the schedule and in sub-paragraph (2) of paragraph 5 are of all-India and strategic importance and should for that reason form the subject of Central legislation

3. As regards petroleum, the Provincial Government has no objection to the proposal. I am to add that the oil resources of this province are not yet known; and there are no indications of the typical shales in which oil is commonly found.

4. In regard to mica also this Government has no objection to the proposal. This province does not possess mica of commercial value.

I have the honour to be

Sir,

Your most obedient servant,

(Sd) L. R. S. Singh

*Secretary to Government, Central
Provinces and Berar, Revenue Department.*

QUESTIONNAIRE II

(Replies from the Labour Commissioner, C.P.)

I—CONSTITUTIONAL.

1. In view of the possible planned industrialisation of the country and in the view of the fact that Coal is a national asset I am of the opinion that the Central Government should enact legislation to vest in itself a power to regulate mines and mineral development and to control the production and distribution of coal. Some latitude, should however, be given to the Provincial Government in case they need coal produced in their jurisdiction for their own industrial development.

2. It is also considered desirable that separate Central Government department should be created to deal with all questions relating to minerals and mines including coal.

II—ECONOMICS OF THE COAL INDUSTRY.

(a) *Structural Organisation of the Industry*—

3. It is true that all collieries in this Province are generally administered through the

managing agency system though few of them are private concerns. The system, though has some abuses, could not be easily put a stop to and should be used as a main incentive for some time to come until the State is in a position to take over the entire production which means training of experts and a better research organisation and extension of administrative machinery.

(b) *Ownership and Management—*

7. As I have already stated that the system of private ownership should continue for some time the State should exercise effective control over production, distribution and marketing.

(c) *Finance—*

II. It is true that many concerns are at present under-capitalised but if steps are taken to prevent sudden fluctuations in the prices of coal the necessary incentive to invest money for more equipment and technique would be there and capitalists would be induced to undertake this work. As a short-term measure the state should also help through the United Nations Organisation for supply of machinery and equipment.

(d) *Production—*

13. Reference is invited to Dr. Seth's "Labour in the Indian Coal Industry" from which the following information is given (pages 86-87).

I

Country	Average pit-mouth value of coal in India and foreign countries in 1935	Pit-mouth value of Indian coal as % of that of the foreign coal	Daily earnings of the Indian miner as % of the daily average earnings of the foreign miners
	Rs. as. ps.	%	%
Germany	11 3 7	24.4	8.0
Great Britain	9 5 0	29.5	9.1
Australia	7 12 0	38.4	6.6
Belgium	6 14 4	40.0	27.2
U. S. A.	6 7 0	42.7	5.3
Japan	6 1 0	45.3	25.0
Poland	5 13 2	47.3	14.7
South Africa	3 0 0	75.8	47.6
India	2 12 0		

II

Country	Wage cost per ton of commercially disposable coal in 1935	Share of wages in the pit mouth value of coal
	Rs. as. ps.	%
Great Britain	5 9 9	63.3%
German	5 2 2	46.7%
Netherlands	4 8 3	53.4%
Belgium	2 12 3	48.1%
Poland	2 11 0	46.2%
France	2 6 11	48.3%
India	1 1 7	39.0%

14. (i) More consideration should be given to welfare of mining labour and improvement of general wage-level.

(ii) Provision of adequate bonus etc. for increase in out-turn.

(iii) Provision of adequate supply of tub, lighting arrangement and mechanical appliances.

15. System of coal raising contractors may be abolished in the interest of labour, better management and increase output.

16. Electrification and mechanisation in the industry will help to increase the output and meet the deficit in products.

(e) *Distribution and Marketing—*

17. I am of opinion that the Central Marketing Agency under Government aegis with representatives of collieries, traders and consumers should be brought into being.

18. A complete analysis of all Indian coals together with terms of profitable and economic use should be undertaken by properly constituted research organisation.

(f) *Transport—*

23. I am against the proposal of pooling of rail freights so as to keep price of coal at various centres at the same level. If this is done this may mean that the cheap grade coal produced in Central Provinces will be made available at the same price to a place where neither coal nor raw materials exist in sufficient quantity for the starting of industry. The fixation of rail freights is a matter which railways are in the best position to decide and the principle which being followed at present may also be followed in future.

26. In view of the transport difficulties and the shortage of wagons that is likely to continue for some time I am of opinion that reduced freight rates should be charged by railways for train loads of coal consigned to one consumer.

(g) and (h) *Price and Profits—*

29. In view of the fact that larger and larger quantity of coal would be required for various industries in the period of post-war industrial reconstruction it would not be desirable to allow free competition in the matter of prices of coal. The price fixation would ensure a stability of prices, peace in the industry and help to maintain the standard of living of a large number of workers at present engaged in the industry.

37. The Indian Mines Amendment Act, 1935 which attempts to give effect to the draft convention in respect of work in coal mines by the 15th session of the International Labour Conference 1931 is adequate relating to labour in mines, though much still remains to be done for the welfare of labour. The employment of women under-ground is already stopped by the Central Government and this is bound to have a good effect on the health and safety of this class of persons.

V—CONSERVATION GENERALLY

60. It is true that some amount of coal is locked up under the railway lines in the Pench Valley area and if the realignment of railways does take place this coal can be extracted. No efforts have so far been made in this direction.

72. Reference is invited to the geological surveys of the Mahanadi area, Nagpur and Kamptee area and useful attempt can be made if these areas are surveyed with a view to see if coal can be usefully obtained.

Other questions do not relate to this department and have not been answered.

WRITTEN EVIDENCE OF THE DIRECTOR OF INDUSTRIES, CENTRAL PROVINCES AND BERAR.

MEMORANDUM QUESTIONNAIRE II

It is difficult in the short time allowed to furnish any satisfactory answer but an attempt is made below to answer as many questions as possible seriatim:—

(i) Coal should be considered as a national asset to be used for the benefit of the country generally and it is desirable that the overall control, both in the matter of production and distribution should be undertaken by the Central Government while within quotas fixed the Provincial Governments can operate. Control is necessary to tune production to demand and save the industry from price vagaries which is the only way to stabilise the industry on a sound footing and allow mining interests to undertake long term improvements and provide labour with essential amenities. The necessity for conserving superior grade of coal for certain special purposes and the use of inferior coals for purposes for which they are suitable has to be planned on an all India basis. All this means control, but the producing provinces should have a big say in deciding even the overall policy.

(2) I support both the proposals.

(3) There is no doubt that the managing agency system offers scope for abuses and this is exploited as freely in the coal industry as in other industries.

(4) There does not appear to be any suitable substitute for the managing agency system unless the State undertakes exploring for minerals and operating mines itself. The Managing agents undertake prospecting operations and float companies from a profit motive and if this gain is denied there will be no incentive to undertake such work.

(10) The ultimate objective should be the State ownership and operation of coal. But at present the organisation for undertaking this stupendous duty does not exist, and it would be better for Government to make a start by controlling and working minor supplying State undertakings like large power stations. In any case the State should exercise full control in production and distribution of this and other important minerals.

(ii) *Finance*.—It is quite true that the finance of many concerns undertaking the trade is very poor. The reason however why the trade does not invest more money in the mines is due to the uncertainty of coal prices. If producers are protected from the vagaries of price fluctuations then it will be reasonable to expect them to invest in capital equipment necessary for the actual working of the mines. Electrification undertaken by the State will reduce the cost of equipment to be installed by mine owners.

(13), (14) and (15)—In this connection please refer to 'Labour in the Indian Coal Industry' by Dr. B. R. Seth.

(16) Electrification whether possible by a central system is advocated, as it will not only reduce the colossal quantity of coal consumed by

colliery boilers—this amounts to 80% of the output in some cases—but also increase output. From the long term view, the realignment of railways or starting of new lines to provide better transport facilities to coal mines is worth consideration.

(18) and (19) The complete regulation of the use of coal has already been suggested and it may become necessary to have complete figures of analysis and have a thoroughly competent technical body to decide to what best use each type of coal can be put and how coals can be graded accordingly.

(23) We should object to any pooling of freights to the extent that it will result in the industries being located in places where raw materials in large quantities are not available. Reduction of freights justified economically from the railways point of view in view of larger traffic resulting from reduction should be undertaken but any further reduction should be treated as a subsidy to the industry. Unnecessary transport is to be avoided in all industries and pooling of freight rates to have uniform price over a large area may result in industries being located in wrong places causing unnecessary transport. It may be interesting here to recall a statement made by the Chairman of the Ahmedabad Electric Supply Company that in 1945 due to the deterioration in quantity of the coal, 28,000 tons of unproductive earth involving 1,000,000 wagons miles of railway freight was carried to their own power station and he characterised this as a gigantic national waste. Freight reductions will encourage such useless transport and militate against steamusing industries growing up near the fields producing the inferior coal to foster which should be the aim of all India planning.

(24) We should object to tampering with freight rates for reasons already stated. We should always be able to know how far we are subsidising any industry and indirect subsidies like tampering with freight rates will prevent us from knowing the exact position. However the exact position. However there are cases like the carriage of high grade coking coal from Bihar to the proposed Iron and Steel Works in C.P. In this case the railway will be assured of a new traffic which would reduce their working costs and to that extent the lowering of the freight rate is justified. The question of future freight rates is essentially a problem for the railways, in which they will no doubt be advised by their own research organisations.

(26) In view of the economies in wagon time, there is justification for preferential freight rates for train loads to one consumer.

(29) In the interest of our efficient running of mines as a long term project, better wages to workers, etc. it is not desirable to revert to unrestricted production and free competition.

(46) There is no doubt a case for the restriction in the use of metallurgical coal. A case for doing this with adequate reasons will no doubt be made out by the Steel Companies who are most interested in the matter.

(60) The question of recovery of coal underneath the existing railway lines may be considered side by side with realignment of railways. In the Pench Valley Coal fields a considerable amount of coal lies under railway lines and in new alignment of railways to serve other coal fields, this coal could be released.

(61 and 62) There is considerable scope for the better utilisation of coal and this no doubt will receive the attention of the new research organisations. Such organisations will not only consider the use of pulverised coal fuel but also the refuse coal or slurry from washing operations to be shortly undertaken. But it may be stated that any pulverised fuel firing system must be unsatisfactory with high ash content Indian coals or at least the claims of pulverised fuel for utilising low grade coal has not been borne out in practice. In this connection a reference is invited to the second progress report of the Technical Panel on the 'Utilisation of low grade fuels', British Colliery-owners Research Association, 4 Albert Hall Mansions, S.W.7.

(63) The locating of central power stations at pit heads wherever distances to consuming centres justify should be undertaken. Further chemical industries using large quantities of steam should be located near areas producing inferior high ash content coal which it will not pay to transport any long distances. This will be in the interest of conservation of fuel resources. The advantages of the pithead central supply station are: (1) It saves transport of the unproductive earth in high ash and (2) the efficiency of modern stations may be 20 to 25 per cent. instead of 8 to 15 per cent. of the ordinary industrial plant. But pursuing this economy may saddle the country with what may be considered in future an inefficient system in comparison with combined power and process stations when an efficiency of 70 to 80 per cent. may be obtained. For this reason the Provincial Industries Committee has recommended the establishment of Chemical Industries using large quantities of process steam along with power station schemes.

(72) The Mahanadi area north of the Bilaspur Raigarh railway line deserves exploration. All available details of this can be obtained from the Geological Survey of India Reports.

WRITTEN EVIDENCE OF THE MINING ADVISED TO GOVERNMENT, CENTRAL PROVINCES AND BHRAR.

QUESTIONNAIRE II

I. Constitutional—

1. The division of responsibility between the centre and the provinces regarding mineral development is not satisfactory at present, because Co-ordination in mineral development and production between different provinces is not practicable under these circumstances. A glaring example is the production and distribution of coal. While areas having inferior coal which can be well used for power generation and for steam raising in mills and railways remain undeveloped, the production of limited reserve of

metallurgical coal is far greater than what is required by the Iron & Steel Industry. I consider that the Central Government should enact legislation to vest in itself the power to regulate mines and mineral development of strategic value, such a coal, iron, manganese, mica, bauxite, etc., and a department should be created under a member of His Excellency the Viceroy's Executive Council to deal with all such questions. At present the Indian Coal Industry is the affair of many departments such as Commerce and Industry, Labour, Supply and Railways.

II. Economics of the Coal Industry.

3 and 4. The efficiency in the management of collieries by the Managing Agents is certainly high. This system, however, has outlived its usefulness and cannot fit in the present tempo and national aspirations of the country as a whole. No changes are possible unless the mines are nationalised and in view of the greater interest of the country they should be nationalised at an early date and the different units of production should be abolished. There should be one unit of production because control and conservation will be most difficult otherwise.

6. The collieries run by the Indian Government Railways have had bad influence on small colliery owners and on the Coal Industry in general. The fixation of the price of coal in the past by means of tenders was practically in the hands of the railways, and perhaps in unofficial collaboration with the big Managing Agents, it always created a cut-throat competition between the colliery owners, particularly the smaller ones.

7. I agree that private ownership of mineral rights in permanently settled areas has led to the dissipation of coal resources. To rectify the position, the Government should acquire these mineral rights and take power to revise the existing leases. The disadvantages of private ownership of rights in coal are, that a coal property owner is mostly a non-technical man and therefore he does not realise the great loss that may take place due to careless mining methods. He also cannot appreciate the depletion of the reserve for metallurgical coal and in those cases where the area is a small one, lot of coal is wasted in barriers. There is a striking example of this in the Jharia coalfield where a good many colliery proprietors have uneconomic size of coal area to operate with the result that almost 15 to 20 per cent. of the coal is locked up in barriers and they may be treated to be as good as lost to the country. There is also the question of several seams existing in the same area. A man who has taken a lease, takes it for a certain number of years and his interest is to make as much money as he can, before the period is over and therefore he begins indiscriminate exploitation of coal without any regard either to proper mining methods or consideration of coal conservation. Mostly this has been the practice in the past. If lower seams are worked out before the upper ones are touched the upper seams are spoiled and cannot be easily worked. This has been the case in the Jharia Coalfields which has resulted also in fires and lot of coal has

thus been wasted and completely lost. Moreover, a lessee can always offer sums of money to the owner for the freedom to work any way he pleases without any consideration to the wastage of coal.

9. This would not serve the purpose of stopping the waste of metallurgical coal because most of the areas containing metallurgical coal have already been leased out.

10. I would advocate State ownership and operation throughout.

11. The solution would be to amalgamate smaller concerns into bigger ones.

13. The proportion varies from colliery to colliery. I should think that an average figure for this proportion would be something like 55 to 65 per cent. for India at present. The figure for United Kingdom for this proportion may be something like 75 to 85 per cent.

14. To improve the output of Indian coalmining labour, we have got to see that :—

- (a) the working places in mines are properly ventilated;
- (b) the miners should get adequate and regular supply of tubs in time for loading;
- (c) there should be provision for good lighting;
- (d) their working places should be better laid out;
- (e) machine mining should replace as much manual labour as possible because, unless the machines are introduced, the output cannot improve;
- (f) improving the standard of life of the miners along with a good provision for health, sanitation and proper food;
- (g) complete stoppage of wine drinking facilities to miners.
- (h) miners should get some bonus on increased production as an inducement for increasing the output.

15. I do not think so. On the other hand, this system has resulted in unsystematic mining methods and also brings in corruption and slackness in the ranks of officials of the mines.

16. To make up the deficit in production of coal it may be suggested that better living and wage conditions for miners should be treated, so that labourers from other industries may be attracted to mining. I think the deficit is mostly due to shortage of labour. Machine mining should be introduced as much as possible and as early as possible. Women Labourers should be trained to do light surface work in colliery instead of employing the men for such work. Men should be mostly employed underground for the production of coal. To keep up the output the mine officials such as

Managers, etc., should get a bonus on increased production. Consideration of State aid should be given with regard to those collieries which have little or no profit of margin due to very difficult working conditions. Collieries should not be handicapped in increasing production for want of mining machinery. They should be given priority.

18. Except the immediate control on metallurgical coal, I do not think it would be possible and feasible at present to consider the case for the complete regulation of the use of different coals for different purposes. I think it may be considered desirable that the industry should be allowed to prosper a little and acquire a foot-hold before this matter may be looked into. Of course it may be necessary to have a complete analysis of all Indian coals before such regulation can be enforced.

19. Yes.

22. I agree that the distribution should be on a zonal basis. For each coalfield, such as Jharia and Raniganj, Bokaro, Ramgarh, Pench Valley, Chhattisgarh, Chhindwara, Wardha, Singareni, Assam coalfield, an economic range for consumption of coal should be determined and distribution should be according to transport economy.

29. I do not consider that return to free competition in the coal industry will be desirable. I think the Government should have the power to fix prices in consultation with the representatives of the industries.

45. The information available with regard to other known deposits of metallurgical coal, is inadequate and consequently I do not consider it would be advisable to bank on those deposits. There is a case for restricting the use of metallurgical coal to Iron & Steel Works and other Metallurgical Works only at an early date.

48. The only solution possible would be that all the collieries containing metallurgical coal should be nationalised and owned by the State after paying adequate compensation.

49. I think the State should own and operate all metallurgical coal.

53. No.

54. The present percentage extraction in India would be about 50 to 60 per cent. There has been some improvement in recent years due to sand stowing.

55. The existing mining regulations regarding section working and depillaring are not adequate for securing maximum extraction. I think the only solution is to enforce compulsory stowing both for conservancy and for safety in all cases of depillaring and section working when the seams are thick and/or are contiguous.

56. I agree that the rotation working should be controlled.

57. Yes.

61. I am not aware of any developments in India in the use of pulverized coal and colloidal fuel I think the Fuel Research Department, Government of India take up this matter and find

but the economy and efficiency in coal consumption by their use. Low grade coal can be used as pulverized fuel for power generation as is being done in Great Britain.

62. Power generation in the coalfields of Bengal and Bihar and their transmission at high voltage to consuming centres will certainly be more economical and cheap. Low grade coal can be utilized to a great extent. The only difficulty perhaps would be adequate water supply.

63. The present methods of producing soft coke are very wasteful ones. I think the Fuel Research Department should look into this matter for production of soft coke by low temperature

carbonisation, so that the bye-products can be wholly or partly recovered.

64. Yes.

67. Where Provincial Governments own the minerals, I think, there should be a Minister in-charge of the mines and there should be a properly staffed Mining Department, with a technical mining man in-charge of the department as the Secretary to Government dealing with mines and minerals. At present the period of the lease appears to be too short and mine owners are afraid to invest large sums of money, because there is an element of risk if the leases are not renewed after the expiry.



14. WRITTEN EVIDENCE SENT IN BY THE GOVERNMENT OF SIND (GENERAL DEPTT.)

QUESTIONNAIRE I

I offer the following remarks on such information as is obtainable locally.

Item I.—General : There are no big collieries in Sind and item I does not apply.

Item II.— Grading and export :

I have no adequate information to be able to give definite views with regard to development of export trade of Indian Coal but from the existing coal shortage and the fact that the coal resources of India are not unlimited, I would feel inclined to say that no special measures are necessary for developing export trade. It is necessary to have proper arrangements for grading, so that various collieries naturally prefer to purchase the best grade in view of high freight costs. This affords good opportunity to South African Coal to compete on the West Coast of India if African coal is allowed to come. This factor should be taken into account while arranging distribution of Indian coal on all India basis to ensure that Indian coal does not lose its own market.

At present Railway freight on the average from Bengal and Baluchistan fields to Karachi is roughly Rs.17-4-0 plus cartage Rs.1-4-0 per ton. Formerly Steam freight was much cheaper (about Rs.9/- per ton). Now of course due to shipping difficulties question of shipping does not arise.

It is essential that coal be graded whether it is intended for internal market or not.

Item III. So far my information goes unloading facilities etc., at Karachi Port are adequate.

Item IV, V, VI, VII & VIII. I have no remarks to offer.

WRITTEN EVIDENCE SENT IN BY THE GOVERNMENT OF SIND (GENERAL DEPTT.)

QUESTIONNAIRE II.

I am directed to refer to your letter No. Nil dated the 18th February 1946 on the subject noted above and to forward herewith a copy of Director of Industries Sind's letter No. Int/Mines/1230, dated the 16th March 1946 containing replies to the relevant paragraphs of the questionnaire.

2. Copies of the notes on the agenda of the Industries Sub-Committee meeting fixed for 28th September 1945 and proceedings of the Industries Sub-Committee held on the 1st November 1945 relating to the Mining, are enclosed.

Copy of Director of Industries Sind's letter No. Int/Mines/1230, dated the 16th March, 1946.

Subject.—Indian Coalfields Committee, Calcutta Questionnaire II.

Ownership and Management : I am in favour of state ownership and management of all minerals deposits including coal.

Transport (23) : Deposits in India are very unevenly distributed. Some provinces are at very long distances from coal fields. In the interest of the nation as a whole it is necessary to develop Industries uniformly throughout India and for this purpose it is advisable to arrange freight rates in a manner as to keep prices of coal at the same level at various centres.

Conservation Generally : As far as is known the deposits in India are far from being inexhaustible. Every measure should therefore be taken to preserve high grade coals and to utilize various qualities for purposes best suited.

(64) Coal Tar is raw material for many basic Industries. As there are no natural gas deposits in India it is of great importance that Coal Tar distillation should be developed to the utmost extent.

Note on the Mining Policy.

At present mining licenses are issued by the Revenue Department. They are of two kinds (i) prospecting and (ii) exploiting. Prospecting licenses have so far been given to 28 persons (list enclosed). There is nothing on the record to show what action these licenses took to find minerals. Some of these licenses are actually license for exploitation such as item 3, 4 and 5.

2. It is suggested that for the future following policy be adopted.

(i) Prospecting license should be considered for fairly big areas only. This will prevent the blocking up of exploitation by small firms who take up a few square miles of areas for prospecting.

(ii) The licensee should start prospecting within 6 months of the grant of license failing which the license should lapse

(iii) The licensee should prospect with reasonable diligence. This condition should be interpreted strictly and unsuitable licensees should be eliminated by cancellation of the license. The licensee should submit six-monthly report of the progress of work.

(iv) The prospecting license should be ordinarily for a period of three years with no extension for any reason. A licensee who means business should be able to carry out his prospecting within this period.

(v) A licensee who has successfully completed his prospecting and applies for exploitation license should be granted the same except for very grave considerations weighing against grant of such exploitation license.

(vi) In all exploitation licenses there should be clauses for employment of 75 per cent. or more Indians in posts carrying a pay of more than one hundred rupees per month and the issue of 49 per cent. of the capital to Sindhis.

(vii) The fees to be charged for prospecting should be moderate. At present the minimum charge is annas four per acre.

This comes to Rs. 160/- per square mile.

- (viii) Mining license should be for duration of 30 years in the first instance with the right of renewing for a further period of 30 years.
- (ix) Royalty on the minerals extracted should be moderate. At present royalty charges for cement are six pies per ton of cement in the first five years and two annas in the next 15 years.
- (x) At present surface rent per acre is charged apart from the royalties, *e.g.*, the rate for cement is rupee one per acre. There is also a dead rent per acre which merges in the royalty.
- (xi) There should be a condition that mining should be carried on diligently, using the most upto date machinery. Expert personnel should be employed and the maximum possible quantity of minerals extracted every year.

List of approved candidates for the grant of prospecting licences and mining leases in the Province of Sind.

1. Messrs. Killick Nixon & Co., Bombay (for all minerals except oil)
2. Messrs. The Indo-Burma Petroleum Co., Calcutta. (for mineral Oils.)
3. Messrs. The Associated Cement Cos., Ltd., Bombay. (for all minerals except oil).
4. Messrs. The Dalmia Jain & Co., Karachi. (for all minerals except oil).
5. Messrs. B. R. Herman & Mohatta Ltd., Karachi. (for all minerals except oil).
6. Messrs. The Burmah oil Co. (Indian Concessions Ltd., Calcutta) (for all minerals except including mineral oil).
7. Messrs. Edulji Dinshaw & Co., Karachi. (for all minerals except oil).
8. Messrs. R. S. Ishardas Kapoor of Jhelum (Punjab). (for all minerals except oil)
9. Messrs D. R. Kappor of Mari Indus (Punjab). (for all minerals except oil).
10. Mr. Choonilal Kapoor of Mari Indus (Punjab). (for all minerals except oil).
11. Mr. Retilal D. Patel, Karachi. (for all minerals except oil).
12. Mr. Md. Usif Khabar Khan of Kotri. (for Gypsum only).
13. Messrs. Fais Md. Dost Md. Silawat of Hyderabad. (for all minerals except oil).
14. Mr. Ram Narain Satyapaul of Calcutta. (for all minerals except oil).
15. Mr. G. P. Sonwala of Bombay. (for all minerals except oil).
16. Mr. Jahrmal Chockhani, Managing Dir., The Dalmia Cement Ltd., Karachi. (for all minerals except oil).
17. Mr. Narsinglal D. Bhatia, of Tatta, Distt. Karachi. (for Silica, Coal & Clay oil).
18. Mr. J. M. Patel, Mission Road, Karachi. (for all minerals except oil).
19. Messrs. Khushiram Tarachand, Saleh Md. Street, Karachi. (for all minerals except oil).
20. Messrs. The Hindustan Investment Corporation Ltd., Calcutta. (for all minerals except oil).
21. Mr. Harisingh Jeramsingh, Jhimpir, Tatta Taluka. (for all minerals except oil).
22. Mr. Gurbuxrai, Proprietor, Luxmi Trading Co., Karachi. (for all minerals except oil).
23. Messrs. The Sind Minerals & Salt Co., Karachi. (for all minerals except oil).
24. R. B. Shivratan G. Mohatta, Karachi. (for all minerals except oil).
25. Mr. Lal Muhammad Saleh Md. Chawan, Jhimpir. (for all minerals except oil).
26. Mr. Baijnath prasad Agarwal, Quarry Contractor, Dalmia Cement Ltd., Karachi (for Gypsum only).
27. R. S. Tikamdas & Sons, Coal mines Owners, Quetta. (for Coal oil).
28. Mr. A. Nath Kapoor, Mining Engineer, Pind Dadan Khan Distt. Jhelum (Punjab). (For all minerals except oil).

SIND PROVINCIAL DEVELOPMENT BOARD INDUSTRIES SUB-COMMITTEE.

Minutes of the sixth meeting of the Industries Sub-Committee held in the Sind Secretariat, Karachi, on the 1st November, 1945.

The sixth meeting of the Industries Sub-Committee was held on the 1st November 1945. Honourable Mukhi Gobindram presided :-

PRESENT.

The Honourable Mukhi Gobindram.
Mr. Roger Thomas, C.I.E.
Mr. P. S. Tolani.
Mr. Jamshed Nusserwanjee.
Lt. Col. W. B. Hossack.
Haji M. H. Gazdar.
Mr. V. Isvaran, I.C.S.
Mr. D.R.C. Halford, I.C.S.
Mr. A. B. Thadhani.

The committee continued the examination of the rules for grant of prospecting licenses in Sind. It was understood that none of the licensees disclosed to Government any information obtained by them while prospecting as required by the rules. Some members were of the view that it was totally wrong on the part of Government to insist that the prospectors should disclose any information to the Collector. One member stated that the prospecting licenses have been granted to people who had no intention to prospect and such licenses have been renewed for more than three years. It was agreed that the following information should be collected covering the past 10 years and placed before the Committee.—

- (1) *Prospecting licences.* a statement showing the name of the party, location, area, date of first grant, date of each renewal and date of expiry of all prospecting licenses and if dues to Government are in arrears.
- (2) *Mining leases.* a statement showing name of party, location, area, mineral, date of first grant, period for which granted, output, royalties paid and whether royalties exceeded the rent, and if dues to Government are in arrears.

The rules affecting prospecting and mining in original should be placed before the Committee. The Committee agree to this and postponed further discussion.

Technical Education.—After considerable discussion the committee recommended that Government should start their own Engineering College at Karachi and attach a technical institute to it. The Committee also approved of the proposal to start a technical institute at Hyderabad.

Location of Industries in Karachi.—The merits of different sites were discussed. The Committee agreed that Trans-Lyari site was the most suitable.

Mr. Isvaran referred to the work of the Government of India panels in Industries and said that it will be necessary for Sind to point out that Industries should be started in the Province. The Committee agreed to discuss this item at the next meeting and asked that a note should be prepared.

15. ORAL EVIDENCE OF MR. T. SIVASANKAR, I.C.S., SECRETARY TO THE GOVERNMENT OF MADRAS, DEVELOPMENT DEPARTMENT, ON BEHALF OF THE MADRAS GOVERNMENT.

Question. About the recent discovery of coal at Cuddalore, we would like to know whether the Madras Government have taken any steps so far in proving the deposits?

Answer. Yes, we have put down drills and I think the investigation so far reveals some 12 square miles of the deposits. And Mr. Milne, I think of the Government of India, visited the coalfield the other day and has suggested that we should put down trial shafts or something like that. If expert opinion thinks that the deposits can be worked, it is our intention that the State should work the deposits. We do not want private capitalists to put up the money and work the deposit for themselves.

Question. Is that a definite policy of the Provincial Government?

Answer. Yes, it is the policy of the Provincial Government that the coal deposits should be worked by the State.

Question. Underground rights belong to Government in that area?

Answer. The whole question is being examined now.

Question. Is it a zamindari area?

Answer. No. That question is also being examined. We have called for a report. It is neither purely zamindari nor wholly Government.

Question. Do you agree that a co-ordinated plan of development of the coal resources of the country is necessary? And would the Government of Madras fall in line with any plan which may be settled by the Centre, of course in close consultation with the Provinces, etc.?

Answer. At this stage, I can only express my personal opinion. If you wish, I will discuss with the Hon'ble Minister in the afternoon or tomorrow and let you know.

Question. Apart from the question of co-ordinated development, there is also the question of safety of mines, etc.

Answer. On those points, we would follow.

Question. There is also the need for a uniform labour policy, questions of conservation, question of scientific utilisation of the coal.

Answer. That means direct interference.

Question. I wouldn't like to call it interference. It is a question of falling in line with the policy adopted after full consultation between the Centre and Provinces and after receiving the fullest possible expert advice.

Answer. On those points, I will be able to answer tomorrow.

Question. Mr. Sivasankar : Are there any memoranda easily available on your hydro-electric schemes and general industrial plans? One of the matters under our enquiry is the likely demand for coal for various purposes.

Answer. The Post-War Reconstruction Committee reached certain conclusions and we have certain post-war schemes in view for hydro-electric and thermal generation, and I think you will be able to get a copy of that. As regards large-scale industries, planning has been going on in the Planning & Development Department. But in the new plans for large-scale industries, the Government do not propose to run any themselves. We will be leaving them to private enterprise when they come forward. At this stage we can only give a general idea of our plans for large-scale industries.

Question. There is a suggestion that some of the industries located around sea-coast could profitably be converted to the use of oil instead of coal. Have you any comments on that?

Answer. There again is a policy issue arising as to whether (1) any concession should be given to encourage the use of oil if coal is short and (2) it is advisable to convert the industries to use oil when we have to depend almost entirely on import. I can only express my personal opinion. To make our industries depend on oil which we may not get is not advisable. The war has taught us the danger of excessive dependence on imports.

Section III



STATES

16. WRITTEN EVIDENCE OF THE RAJA AND RULER, TALCHER STATE

QUESTIONNAIRE I

The action taken by the Talcher Durbar by enforcing the Indian Mines Act and rules thereunder and also by making stowing compulsory is considered to have satisfactory adequate results. The State had nothing to do with the Committees established in 1920 or in 1937. However the Durbar has regulated the leasing of coal bearing lands to prevent inefficient and wasteful working, got boundaries of leases well demarcated to avoid loss of coal through irregular workings. Dimensions of pillars and galleries are regulated under mining rules. The other conditions such as depillaring, rotation and isolation of working and measures to extinguish or circumscribe fire do not exist in this field.

II & III. GRADING & EXPORT

The Talcher Coal has so far not been graded as it occurs in an Indian State. The State has maintained its reciprocity in all matters with the British India in order to see that Talcher coal is not placed in a more advantageous position than the British Indian Coal. So the grounds against its being graded have become out of date. It is now moved that all obstructions standing on the way of Talcher coal being shipped outside should forthwith be removed.

IV. RAILWAY FACILITIES

No complaint has been reported to the Durbar in this connection - So everything is presumed to be in order.

V. RAISING COSTS

The cost of raising coal is reported to have increased from Rs. 2/15/- in 1939 to about Rs.12/11/- in 1945.

VI. RAILWAY COAL REQUIREMENTS

Almost all coal despatched from this Field is meant for Railway consumption as the Railway Collieries here are only meant for Railway requirements. The only private Colliery here is the Talcher Coalfield Ltd. This is also supplying all its coal mostly to the Railways.

Some of the Experts think that attempt may now be made to utilise some lower grade coal for Locomotive purposes. The possibilities of this requires exploration as in the Talcher Coalfield area there are enormous quantity of coal of all grade.

VII. STOWING

As already noted above stowing has been made compulsory in this State. All arrangements are being made to assist the Collieries to supply sand. The Collieries are also preparing to commence stowing as soon as possible.

VIII. MISCELLANEOUS

(a) *Briquetting of coal.*—This is in extensive use in Great Britain. It is not understood why it should not be so in India. Some sort of Briquetting is being done in the M. & S.M. Rly. for use of coal for boiler, but in order to save a great amount of a steam coal issued now to coolies for their house hold consumption. Dust coal, which was previously allowed to burn may be utilised economically by way of Briquetting of coal.

(b) *Educational Facilities.* The State provides in its usual way, educational facilities to the Children of the miners and other classes of worker through L.P. Schools and only in a few instances through U.P. Schools as well. There are two L.P. Schools one for boys and one for girls at Villiers Talcher Colliery.

(c) *Settled and contented labour Force.*—There is no doubt about the fact that a contented labour Force is the back bone of the Industry. If the labour force is not stabilised, there is no hope of getting satisfactory results with a migratory Colliery-labour. The Durbar anticipated this long before and persuaded the mine owners to make an attempt to collonise Colliery labour. But this was not found feasible at the commencing stage. The Durbar still retains its views that it is not possible to persuade the present labour force to work one hundred per cent at the Colliery since they are predominantly agricultural workers who only attend the mine as part time labourers. Arrangement should be made for the grant of cultivating land to the miners on or about the Colliery. This can be done by acquiring surface right of land suitable for agricultural purposes. In addition to this a decent living wage to the miners is necessary and this can only be done by increasing the price of coal to enable the Coal owners to pay increased wages to the miners.

To counter effect absenteeism that may follow increased wages to miners the standard of living of the miners should be increased—provision of good quarter with latrines, kitchens, compound walls should be made for the miners. A small vegetable garden should be attached to this quarters. Miners belonging to agricultural class are very fond of it.

17. ORAL EVIDENCE OF MR. LABHU RAM, ON BEHALF OF THE GOVERNMENT OF JAMMU AND KASHMIR.

At present coal is being worked at Jangal Gali 42 miles from Jammu, by a sole sales agent appointed by the Government for an initial period of two years. There is a 33 miles fair weather lorry road and the rest is pony track. Output in 1945 was 4,000 tons and till the end of May 1946, 4,700 tons has been raised. The intention is to increase output at Jangal Gali as far as possible.

The coal is anthracitic in character and its chief use at present is for brick burning. It appears suitable for briquetting with a proper binder as was established by Mr. Simpson's experiments. It is sold in Jammu and is sent up to Amritsar (Punjab) by train from Satwari. The transport charges from the mine are high being 14 annas to Re.1/- per maund and the coal is selling at Rs. 60/- per ton at Jammu, but the price it fetches at Amritsar cannot be stated with any exactitude. The cost of extraction is about Rs.2/8/- per ton and royalty is about -/4/- per ton. The coal raised is sold by the State to the Sales Agent at Rs.8/1/- per ton at pit head. When petrol becomes available in abundance, transport charges would be considerably reduced and coal can probably be sold, at Rs.35/- per ton at Jammu. But even so it cannot compete with Bengal Behar coals.

The estimated reserves of the coal fields are 42 million tons upto a depth of 1,300 feet.

2. A second area from which coal is being raised in small quantities is the Dandli field. 420 tons were raised in 1945 and 580 tons upto May 1946. The Lower Measures coal is hard and lumpy like Kalakot and Upper Measures coal is powdery and is usable in brick and lime kilns.

3. Some coal was extracted at Kalakot in 1942-43. 680 tons in 1942 and 1,043 tons during 1943. The coal is good steam coal and surface and underground workings upto a depth of 160 to 200 ft. have been made. The extraction was done departmentally and about 200 to 300 tons of the coal raised are still lying undisposed of. Work had to be abandoned owing to serious transport difficulties. The coal here occurs in two measures—the Upper measures comprising three seams (lower, middle and upper) of the steam coal and the Lower Measures.

4. The thickness of the seams in Jammu and Kashmir varies from two to twenty feet and coal is raised mostly by quarry work though at some places underground work has been done.

5. There are some lignite deposits in the Kashmir valley 18 and 58 miles from Srinagar. Some mining has been done during the last two years, and the coal is becoming popular as substitute of firewood in factories, Government offices and for household purposes. Estimated reserves here are 48 million tons in the Shali Ganga Coal fields and 80 million tons in Handwara area.

6. Kashmir coal is mostly used for brick and lime kilns and also to a limited extent for electricity generating and in water works. The consumption of coal in the State itself is about 4,000 tons and some of this comprises coal imported from outside the State. Excess of raising in the State must be exported and there is no immediate prospect of an increase in the consumption of coal in the State. For coal coming from outside, the State has fixed controlled prices of Rs. 1/11/3 and Rs. 1/12/- per maund for steam coal and coke respectively at Jammu.

7. There is no scheme at the moment for developing the coalfields or for providing necessary transport facilities. The State might, however consider the possibility of systematic development and fall in line with any scheme of controlled development that may be decided upon for the other coalfields of India, but Mr. Labhu Ram was not in a position to commit the State in this matter.

Certain plans for hydro-electric Development at Udhampur, Mirpur, Didiangarh etc. are now being considered in a preliminary way; the electricity generated could be used for mining purposes (i.e. Bauxite etc.) and other industrial needs.

8. Prospecting Licenses and Mining leases are granted in accordance with the rules framed by the State: royalty and other terms are fixed and a model lease form is adopted. The rules do not bar the grant of mining lease to an outsider, but such an individual is required to pay slightly higher charges for a Certificate of Approval. As to the actual working of the mines, no regulations on the lines of the Indian Mines Act and Rules exist. Normally the period of a lease is upto 25 years in the first instance with the option of renewal, if desired, upto 10 years. Leases of coal bearing lands have, however, been granted for periods of two years only for the present, because it was felt that with the end of the war, it might prove difficult to find a profitable market for the coal.

9. Labour in Kashmir is mostly casual and no special facilities or amenities are offered. Prior to 1942, the wages was about -/8/- for an 8 hour shift, but now it is Re.1/- to Rs.1/8/-. The coal is soft and the output per head per shift is comparatively high being about half a ton. The State rules ban the employment of women underground.



Section IV

PORT TRUSTS

18. WRITTEN EVIDENCE OF THE BOMBAY PORT TRUST.

QUESTIONNAIRE I

Question No. 10.—Before the war coal was transported by steamer to various consignees in Bombay. The steamers discharged their coal overside into lighters which were then unloaded by hand at wharves, specially allotted for this traffic, with a total quayage of 5,300 feet. During the war coal was railed from the collieries to storage sites set aside for the purpose. No special facilities or mechanical appliances have been provided for loading, discharging or bunkering coal.

Question No. 11.—In the absence of any complaint in regard to the inadequacy of unloading facilities, it is presumed that the Trade is satisfied with the existing arrangements.

Question No. 12.—Vessels are bunkered with coal from—

- (1) lighters in the stream
- (2) lighters overside in the docks

- (3) railway wagons, in special circumstances, over the dock quays.

Bunkering is by hand labour and the present arrangements are considered adequate.

Question No. 26.—In order to meet Port Trust requirements it is proposed to revert to the pre-war policy of obtaining Bengal Coal, as soon as it is available.

Question No. 27.—A statement is attached showing the quantity of coal consumed during the past 10 years by various sections of the Port Trust. The coal was obtained from several collieries in Bengal and the Central Provinces, none of them under Port Trust control.

Question No. 28.—Coal for locomotives and shore and floating plant was obtained during war from the Central Provinces and was used on all types of plant. No modifications or adaptations were made to the various types of boilers in use.

BOMBAY PORT TRUST

Statement of coal consumed by the Bombay Port Trust. (Referred to in the reply to Question No. 27).

	Flotilla (Tons)	Engine House and Cranes (Tons)	Railway Locos (Tons)	Miscellaneous (Tons)	Total (Tons)
1936-37	14,326	6,350	5,564	..	26,240
1937-38	14,177	6,121	5,880	..	25,978
1938-39	15,678	6,464	5,750	..	27,892
1939-40	15,170	2,935	5,962	470	24,537
1940-41	15,380	2,906	7,053	791	26,130
1941-42	15,299	3,573	9,695	655	29,222
1942-43	18,933	4,843	14,034	832	38,642
1943-44	18,937	5,184	15,748	941	40,810
1944-45	17,548	4,752	16,947	865	40,112
1945-46 (10 months)	20,539	4,945	15,640	755	41,879
GRAND TOTAL	165,987	48,073	102,073	5,309	321,442

ORAL EVIDENCE OF MR. F. M. SURVEYOR
REPRESENTING THE BOMBAY PORT
TRUST

1. The storage space, which is available at Coal Bunder and is let out to merchants in plots to enable them to load or unload and store coal brought alongside by country craft, is approximately 30,000 square yards. There have been no complaints in regard to the inadequacy of storage accommodation at Coal Bunder, and the space available is considered adequate for the import of coal on the present scale.

2. There is in addition a large area available for the storage of rail-borne coal at the Coal Depot and a smaller one at the Clarke Bunder. The maximum area of ground taken up for the storage of rail-borne and sea-borne coal at the Coal, Tank and Clarke Bunders and the Coal Depot was 97,300 square yards in 1944-45 and 95,500 square yards in 1945-46.

3. The Port Authorities can furnish statistics to show the amount of coal carried in country craft or lighters or in their own railway system.

4. There are 4 deep draft berths in the harbour set aside for discharging coal, where lighter and country craft can come alongside.

5. Coal is bunkered inside the docks as well as in the harbour, the quantity handled being about 180,000 tons a year. There has been a definite trend lately towards oil burning ships and this argues against any increase in coal bunkering facilities at the Port.

6. The coal consumption of the Port Trust has gone up from 26,000 tons in 1936-37 to about 42,000 tons per annum at present. This is partly due to the more intensive working of dredgers locos etc. and also partly because of the inferior coal from the C.P. Before the war, the Port Trust obtained its coal from Bengal.

7. Experience with C.P. coal points to the desirability of a reversion to Bengal coal, at least for marine boilers; C.P. coal is suitable for locomotives. The specifications of the coal needed by the Port Trust includes ash below 15 per cent. and calorific value of about 6,500 calories. A note on the supply of coal to the Port Trust is attached. The Port Trust requires coal principally for steam raising and will accept any sufficiently efficient coal. From the point of view of rail transport economy, C.P. coal should normally be sent to consumers in Western India, but if Bengal coal was available and the price was not too high in comparison with that of C.P. coal, the Port Trust would prefer to have the former.

8. No experiments had been conducted on the adaptation of boilers to use low grade coal. Marine boilers are designed to supply a certain amount of power to engines and adaptations may react adversely. The Port Trust proposes, however, to use oil fired boilers in future replacements of floating craft. The decision to change over based sole on grounds of efficiency of power generation, in spite of fuel oil being an imported commodity.

SUPPLY OF COAL TO THE BOMBAY PORT TRUST (REFERRED TO IN PARA. 7 OF ORAL EVIDENCE)

1884 to 1913. From the year 1884 the Port Trust invited tenders and entered into annual contracts for the supply of coal, which originally was supplied from the Contractors' stocks in Bombay and in later years had to be delivered direct from steamers. Certain tests were carried out by the Mechanical Superintendent before the tenders were accepted.

1913 to 1935. In 1913 the Chief Engineer reported this procedure to be unsatisfactory, and it was decided to make use of the services of the Mining Engineer to the Railway Board, whose forms, specifications etc. were adopted. Tenders were called for by the Port Trust and sent to the Mining Engineer for advice; the services he rendered, for a commission of half an anna per ton were:—

- (1) Advising the Trustees in regard to the tenders;
- (2) Inspection of the coal at the collieries to see that it was the actual coal contracted for;
- (3) Inspection of the loading of coal at the Calcutta Docks in the case of coal despatched by sea.

In 1918, as the Mining Engineer was arranging (without calling for actual tenders) for the coal supplies of all the Railway R.I.M., etc. and (after these demands had been met) there was very little first class coal available, it was decided to dispense with tenders and ask the Mining Engineer to make similar arrangements for the Port Trust.

This procedure continued year by year until 1922 when, owing to the dearth of first class coal and the prospect of a rise in price, the next con-

tract was made to cover a period of three years (1922-25).

During this period, the Chief Engineer reported that from calorimeter test and working results the Bengal coal was little better than second class coal and was showing very poor steaming qualities; and on his recommendation the Board bought a quantity of Natol coal for trial. The probability of countervailing duty being imposed on Natal coal, which had proved satisfactory, however deterred the Trustees from purchasing it for the 1925-26 contract, and at the same time (in 1926) it was decided to abandon the method of buying coal by seams, and to adopt a system of purchase on calorific power and ash limit. (over 6,500 calories and ash under 15 per cent.)

1925 to 1938. Tenders on this basis were accordingly invited for the 1925-26 supply, and a contract placed (on the advice of the Mining Engineer), which provided for a penalty of 1% of the contract price for every decrease of 1% in calorific value below the guaranteed figure; it was also stipulated that coal below a fixed minimum would be rejected. As working results in our Engine Houses, and not the source of the coal were essence of the new contract, inspections at pits-mouth and at the Calcutta Docks were no longer necessary and the Trust ceased to avail itself of the services of the Mining Engineer.

1938 to 1942. In 1938, the system was changed as:—

The Controller of Stores was instructed to invite tenders in the usual way, tabulate them and send a summary to the Chief Mining Engineer, Railway Board, with a note of Port Trust requirements, for a recommendation, which would be submitted for the Board's acceptance. Inspection of coal, whether rail or sea-borne would be carried out at the collieries by the Chief Mining Engineer's Inspectors for a fee of 9 pies per ton and if brought to Bombay by sea would be loaded at the Calcutta Dock under similar supervision into social holds of ships; the Controller of Stores would verify the holds from which the coal was discharged on arrival in Bombay.

1942 to 1944. In 1942, in view of the difficulties experienced in obtaining coal from the successful tenderer, who had seriously defaulted during the year, the Board decided to obtain coal from the Chief Mining Engineer, for the duration of the war, by including Port Trust requirements in the joint tenders for State Railways.

1944 to date. Since 1944 all coal has to be purchased from Government at the rates fixed by them under Colliery Control Order.

19. WRITTEN EVIDENCE OF THE COMMISSIONERS FOR THE PORT OF CALCUTTA

QUESTIONNAIRE I.

Question 10. There are four coal berths in Kidderpore Dock No. 2 and one at Garden Reach Jetties. Two of the Dock berths are fitted

with mechanical coal loading gear. A fifth coal berth has been constructed recently and will be put into commission as soon as the railway sidings have been laid. The Commissioners have also decided to install mechanical coal loading plant of the belt conveyor type having a loading capacity of 500 tons per hour at another coal berth and an order has been placed for the plant. The berth is expected to be ready in another eighteen months.

Question 11. You have no doubt referred to other Indian Ports about the unloading facilities available.

Question 12. In Calcutta ships working cargo coal bunker at the coal berths. Other ships are bunkered by lighters. The facilities available are considered to be adequate.

ORAL EVIDENCE OF SIR THOMAS ELDERTON, K.C.I.E., AND MR. K. MITTER, O.B.E., REPRESENTING THE CALCUTTA PORT COMMISSIONERS.

Before the war there were ten coal loading berth in the Port of Calcutta but they were not fully utilised even when we were loading manganese ore and iron ore at the mechanical berths (Nos. 19 & 20). During the War the four coal berths on the east side of Kidderpore Docks were scrapped and replaced by three general cargo berths. The coal berths on the east side were not as efficient as those on the west side. One new berth has been erected on the west side and one labour berth (No. 18) has been put out of commission for the erection of the new mechanical coal loading plant. We therefore have at the present time two mechanical and four labour berths and the number of mechanical berths will be increased to three when the new plant has been delivered and erected at No. 18.

We do not agree with statements which have been made that the number of berths now in commission is insufficient for the quantity of coal to be shipped. We have never been short of berths, but certainly there has been poor loading because either ships were not ready or when ships were ready, coal did not come down in sufficient quantities.

With the new mechanical plant the Port will be equipped to ship without difficulty $3\frac{1}{2}$ million tons of coal a year. This figure includes bunker coal loaded into coal carrying ships and bunker coal loaded into lighters at the coal loading berths for removal to general cargo ships. It does not include all bunker coal. We do not agree that when the new mechanical berth is brought into commission giving altogether three mechanical berths, more labour berths will be required to balance. Most of the ships loading in the Kidderpore Docks must start at a mechanical berth as when light they are too high to be loaded by hand, but there is nothing to prevent a ship taking all her cargo coal at a mechanical berth. At the B.I. Jetty on the river side at Garden Reach ships can be loaded from the start by hand. We must aim at loading more coal mechanically as it is cheaper and quicker. It is true that the ships we have to load in Calcutta

are not proper colliers but are general cargo ships and therefore loading plant of a modern type cannot work at its maximum speed, but in spite of this disadvantage mechanical loading is much cheaper.

The capacity of the new mechanical plant is 600 tons an hour, but it is quite likely that we shall not be able to load over 5,000 tons a day owing to delays for trimming. The efficiency of the plant will depend on receiving an adequate supply of open wagons as only open wagons can be used. The Railway Board said that every effort would be made to give an adequate supply and we had this assurance before the plant was ordered.

We cannot store more than 18,000 tons of coal on the ground in Kidderpore Docks but at the B.I. coaling jetty 110,000 tons can be stored; 30,000 tons at the jetty and 80,000 tons in a dump behind. We consider that the dumping of coal is most undesirable as it slows down work and is expensive. Mechanical plant must be served by wagons, and at present rates the cost of loading is increased by more than Re. 1 per ton if coal is dumped. Taking Rs. 2/8/- per day as the value of a 20 ton wagon it is more economical to hold a wagon for 8 days than to dump its load. The B.I.S.N. Co. desired large storage space behind the jetty worked by them not because they thought it would facilitate loading but because they wanted a reserve stock of coal always available in Calcutta for bunkering their fleet.

We are in favour of the system of pooling export coal which was introduced during the War being continued, as in our opinion it facilitates loading. Also pooling will be necessary to enable good use to be made of the new mechanical plant, because some shippers would not be able to supply coal sufficiently rapidly to keep this plant working. We do not agree that slow loading has been due in the slightest degree to the pooling system. It is incorrect to say that wagons were delayed during the war.

Any decrease in the quantity of coal shipped from Calcutta would adversely affect the finances of the Port Trust. Surplus coaling berths would be useless for general cargo.

The practice of employing labour for coal loading instead of Contractors is in our opinion, satisfactory. The Contractors look to the welfare of their labour.

20. WRITTEN EVIDENCE OF THE MADRAS PORT TRUST

QUESTIONNAIRES I

Question 10. Not concerned.

Question 11. There are at present two quay berths available for discharging coal ships at Madras, East and Outer East Quays. East Quay is tenable throughout the year, apart from periods during exceptional weather conditions in the North East Monsoon from Mid October to Mid January. Outer East Quay is tenable from

Mid January to Mid October and also on occasion during the North East Monsoon. North Quay and occasionally a West Quay berth, can sometimes be made available for coal ships. All these quays are equipped with railway lines but only the West Quays have cranes. Moorings are also available for discharging coal into lighters and barges which are in turn discharged and the coal loaded into wagons at Spring haven Wharf.

The maximum discharged in one month throughout the port was 64,100 tons in May 1944.

The average discharge is about 800 tons per day from a ship at a quay berths and 400 tons from one ship at a mooring.

Question 12. Coal bunkering is by large baskets where derrick or crane can work into a hatch and small hand carried baskets into side pockets.

The maximum coal bunkered into ships in one day was 312 tons (into 8 ships). The maximum is, say, 250 tons per ship for three ships but the quantity per ship will drop when there are more than three ships to be worked at the same time.

The maximum coal bunkered into ships in one month was 17,757 tons in September 1945.

ORAL EVIDENCE OF MR. M. S. VENKATARAMAN, REPRESENTING THE MADRAS PORT TRUST.

There are at present two quay berths specially designed for discharging coal, but on occasions some one or more of the other berths have been made available for discharging coal. None of the first two berths is equipped with cranes nor has there been need for them owing to the limited volume of coal traffic. 350,000 tons of coal a year can be conveniently handled at these two berths and except during 1944-45, this figure has not been exceeded in the last 20 years.

2. Imports of coal by sea into Madras Port were fairly good from 1925-26 to 1933-34 but thereafter they dropped; and the war saw a rise but this was mainly because of rail transport difficulties which forced coal to the sea route. The tonnage handled in 1944-45 was 577,000 tons and the facilities available at the Port were found adequate to cope with this quantity.

3. The demand for bunker coal at Madras never exceeded about 30,000 tons per annum before the war and actually since 1931-32 the demand has been much less. This was primarily due to the diversion of big steamers to Rangoon for bunkering purposes. Since then, the bunker demanded at Madras has generally been for topping steamers which had bunkered elsewhere e.g., Calcutta. But the bunker demand went up considerably in war-time due to PSTO vessels; in 1945-46, it was 108,378 tons.

The maximum coal bunkered in a day is 1,312 tons into 8 ships but on an average 250 tons

can be loaded on each steamer and this is considered to be a fair rate of bunkering. It may not compare favourably with a port like Calcutta where mechanical contrivances for loading large quantities are employed, but is adequate for the calls made on Madras Port. There is no case for increasing the facilities having regard to the fact that in 1945-46 over 108,000 tons were bunkered without much difficulty.

4. The internal consumption of the Madras Port Trust is 150 to 200 tons per month.

5. The Port Trust is considering various plans for improving the Harbour with the intention of providing improved facilities for cargo other than coal. The consumers who had to get their coal supplies by sea in war-time are likely soon to change to the rail route and there is thus no point providing improved facilities for coal traffic.

21. WRITTEN EVIDENCE OF THE VIZAGAPATAM MILITARY PORT

QUESTIONNAIRE I

Section II No. 7. It is considered that the regarding of Coal seams is now necessary. The seams might be regarded either as a whole or in sections. The highest grade of steam coal should be reserved for sea-going coal fired vessels where the provision of low-grade fuel results in such things as: hard steaming, excessive ash content—both of these affect of the speed and economy of the vessel together with the inevitable fatigue of the firemen and trimmers.

Section II No. 8. Yes. Grading of coal for the internal market is desirable. The pricing of coal according to the calorific value might be considered in order to discourage the use of a high grade coal in land plants and installations.

Section III No. 11. At Vizagapatam unloading is by manual labour from wagons. Facilities for unloading from Ships are very inadequate.

Section III No. 12. Bunkering is by manual labour at the Coal berth and by manual labour and/or Tubs and Crane at Quay berth I. Facilities fairly adequate.

22. WRITTEN EVIDENCE OF THE PORT OF COCHIN

71. Unloading Facilities.—Unloading of coal from steamers moored in steam is being done by iron buckets or cane baskets into barges and pontoons lying alongside. The average rate of discharge is about 10 tons per which per hour. These barges or pontoons are then taken to the shore where the coal is landed.

There is no separate coaling wharf at this port, but steamers discharging coal are occasionally berthed at the Boat Train Pier where coal is discharged on to pontoons and carried ashore and loaded into wagons. The rate of discharge of coal into wagons at the Boat Train Pier is about 700 to 1,000 tons per day. This practice is adopted for the coal landed at this port for the South Indian Railway.

12. *Bunkering of Coal.*—The average rate is approximately 200 tons per 24 hours by which and 100 tons by stages. Bunkering of coal into steamers is also done from lighters and pontoons taken alongside.

2. Cochin is not a regular bunkering port with the consequence that adequate facilities for bunkering are not possible on a permanent basis. Labour has to be recruited on a casual basis as and when required, and as the labourers are generally inexperienced the rate of loading is naturally poor. If this port is established as a regular bunkering port, the necessary facilities can be provided.

23. WRITTEN EVIDENCE OF THE KARACHI PORT TRUST

QUESTIONNAIRE I

SECTION II

Question 6. At present average rail freight on coal from Bengal to Karachi is Rs. 17/8/- per ton while the F.O.R. Collieries rate for Selected Grade Coal as consigned to Karachi Port Trust at present is Rs. 13/5/- per ton. The present cost of this Selected Grade Coal may be assessed as averaging Rs. 31/- per ton F.O.R. Karachi.

In the years 1933 and 1934 the Karachi Port Trust purchased Selected Grade Coal by shipment from Calcutta at a rate of Rs. 10-6-0 per ton C.I.F. Karachi. If therefore competitive

shipping freight should ever reach anything like the level in 1933 and 1934, it must be regraded that rail borne coal from Bengal to Karachi will always be a most un-economical proposition.

The Karachi Port Trust would urge that the Coal Distribution authorities, Government of India, who are at present arranging supplies of coal to this Trust should be requested to consign coal by the more economical route as and when the shipping position becomes easier and shipping freight is found to be less costly than rail-freight.

SECTION III

Question 11. There are no mechanical unloading facilities at this Port.

Facilities for unloading colliers by manual operations are adequate; there is no shortage of coal-shoots or coal tubs required for this purpose. Under normal conditions, steel barges used for receiving and transporting the coal from vessels to the storage areas are also adequate; as, however, a discharging collier works by day and night whereas the unloading of coal from barges at the stacking areas proceeds by day only, there are occasional delays experienced, especially if more than one collier is working, in releasing barges and resupplying them to the vessels in time.

Question 12. There are no mechanical bunkering facilities at this Port. These operations are generally carried out by manual labour from barges and occasionally from wagons and facilities are adequate.

Section V

RAILWAY BOARD AND RAILWAYS



24. WRITTEN EVIDENCE SENT IN BY THE RAILWAY BOARD

Questionnaire No. 1

As requested only those questions are answered in which the Railway Board are interested, *i.e.*, paras. 13 to 30.

The average freight charges for coal to Madras, Bombay and Karachi from the Bengal and Bihar coalfields are also given in reply to the first part of Question 6.

The answer to the second portion of this question will presumably be provided by the trade.

Before dealing with paras. 13 to 30 the Railway Board wish to make one point quite clear. Question No. 13 refers to the "all-India requirements for the next two years" and asks whether railways will be able to cope with this movement and if not what measures are to be taken. Railways are only now beginning to rehabilitate themselves. Without going into unnecessary details it is desirable to explain that arrears accumulated during war-time in maintenance of permanent-way and of engines and rolling stock, the shortage of essential stores, and fully trained staff there all be overtaken and overcome, before such operation once more becomes normal.

The estimate of potential achievements which follow can only be on the assumption that normality has been achieved. There is, of course, the all important question of revision of pay of Govt. servants which is shortly to be examined by a special committee. It may take two years or more before rehabilitation in all its aspects has progressed sufficiently to permit of a substantial semblance of normal working. Contentment among all grades of staff, the elimination of post-war weariness and a revival of energy are pre-requisite.

The provision of facilities designed to deal with this increased movement of coal are in hand and progressing satisfactorily. Brief details are given in reply to question No. 13. No practical benefit, however, can result from an endeavour to link their phased progress to phases of increased movements. The physical completion of the works now in hand will be but one facet of the problem which will not be solved till railways are sufficiently "normal" to make full use of facilities provided.

It may be taken therefore that our estimate of potential capacity is relative to the position as we hope it will be in two years' time.

Part II—Q. 6.—A statement is attached giving the average rail freights to Madras, Bombay and Karachi.

Part IV—Q. 13.—The movement of about 28 million tons from Bengal and Bihar coalfields will mean an average daily loading of approx. 3,700 wagons per day. It is not anticipated that this daily average could be achieved for at least two years.

Its achievement at the end of that time will depend on the variety of factors not the least of which will be the necessary evening out of the daily average loading to prevent mid-week con-

centration and week-end slumps. It is recommended that the future coal organisation should aim at this aspect of coal loading and the remarks which follow are on this basis.

The B. N. will, we estimate, have wagons, track, power, siding pilot and depot facilities to deal with a daily average of 1,200 per day. On this basis they will be able to move out of the Bengal and Bihar fields 9·285 million tons per annum *i.e.*, about 1/3rd of the estimated despatches from Bengal and Bihar fields.

They should be able to augment this figure by another 200 wagons per day provided that these are for the Calcutta area and *via* thereby raising their total capacity to 1,400 per day.

This is on the assumption that the coal traffic conforms approximately to the following routing:—

BNR—East of Khargpur —	425	wagons
BNR—South of Khargpur <i>via</i> Waltair.	100	"
BNR—Beyond Chakardharpore including <i>via</i> Nagpur and <i>via</i> Katni-Merwara.	260	"
BNR—Local	350	"
Wagons to the EIR <i>via</i> Gomoh.	150	"
Wagons to the EIR <i>via</i> Asansol.	75	"
Wagons to the EIR through the coalfield Exchange links.	40	"
Total	1,490	"

Assuming an average daily loading of 1,400 per day by the B. N. Railway, which is equivalent to 10·833 million tons per annum, the E.I. will be left to move 17·2 million tons per annum or 2,300 wagons per day in a working year.

The capacity of the E.I. to clear traffic from the coalfields depends largely on the destinations. The "Downcountry" clearances capacity is adequate for any probable requirements. The facilities for Upcountry clearances are severally taxed under the present abnormal conditions while the power situation is in an unsatisfactory state as a result of wartime conditions, and while the efficiency of staff is at a low ebb engendered by general discontent on account of cut in food rations, and uncertainty as to future prospects

Note.—If however, the actual working year were to be of 300 days only, this would mean a daily average loading of 2,720, which approximates to the present depot and pilot capacity but is in excess of the estimated clearance capacity in two years' time of 2,600 divided as follows: Upcountry 1,400 Downcountry 950 (could be increased) and 250 Industrial area,

of pay. On the assumption that of the total traffic 1,400 would be for upcountry, when conditions have assumed normality, it will be possible to deal with this number on completion of additional facilities now in hand:—

- (a) increased facilities at Barkakana and on the Burwadih-Sone East Bank loop line;
- (b) conversion of back shunting siding into passing loops on the Allahabad Division;
- (c) completion of doubling between Lucknow—Bareilly;
- (d) improvements on the main line—Sitarampur, Jhajha and Moghalserai;
- (e) improvements in Moghalserai Yard;
- (f) the provision of additional shunting power in Moghalserai.

Note.—Power for this purpose will be available. The rebuilding of the Dufferin Bridge will continue to be a serious handicap to operation for some time.

There are a few points outside Bengal and Bihar but on the main coal routes, which may require the provision of additional facilities such as Katni and Ajni and the transshipment arrangements at Agra East Bank. These are now under investigation.

The actual usage of the various movement potentials dealt with in the preceding paragraphs will, to an extent, depend upon the relative production of despatchable coal not only from various fields but also from section by section of these fields. The Committee are doubtless compiling estimates of production broken down by sections of the various fields and the Railway Board would be glad to receive this information when complete, to review the effect thereof, on the distribution by the different routes of which the capacities have been given.

This brings us to the general question of wagon availability. The loading of 3,700 per day in Bengal and Bihar *plus* say another 600 in other fields, excluding Assam, Punjab and Baluchistan, at a 12 day turnround will mean that approximately 51,600 wagons of our total stock will be continually under load with coal traffic against approx. 40,000 at the present time, *i.e.*, an increase of between 11 and 12 thousand per day. Of the total of 19,290 wagons to be imported from overseas, 4,700 are now in service leaving a balance of 14,590 which will be put into service during the course of the year, supplemented by indigenous production which by the end of 1947 should total another 5,400.

It is to be remembered, however, that this additional B.G. traffic will be spread over 33,000 track miles and if traffic other than coal continues to offer at its present high level, coal loadings will possibly require their high priority to continue.

Part IV—Q. 14.—The recommendations of the Indian Coal Committee, 1925 were fully examined at the time, but no extension of the 10 hour system was deemed advisable for the following reasons. It is of no use in the case of

Mechanical collieries, which operate throughout the 24 hours, and require a constant supply of wagons, placements and drawings being done twice or thrice daily. An extension of the 10 hours system would require additional facilities in the way of holding accommodation for empties, pilot reception lines, and probably necessitate the doubling of some of the colliery service lines. Some of these extensions and additions would have to be over areas containing high grade coal thereby adding to the quantity of good coal now locked up underground.

Part IV—Q. 15.—The method of allotment of wagons in force prior to 1940 was the result of cumulative investigation and experience over a period of years. These investigations were carried out in close co-operation with the trade and though it was impossible to please everybody all the time, the system met with general approval.

However any system of distribution and allotment is only questioned when there is a short supply of wagons.

It is not possible at the present stage to say whether a reversion to the prewar system will in point of fact be suitable for future conditions. Much will depend on measures to be adopted in regard to the general industrialisation of the country and the final shape of machinery created to regulate the production and marketing of coal.

What the railways will undoubtedly need is a clear cut direction as to the method of distribution and of what preference, if any, is to be given to collieries and consumers at times when a shortage raises a clash of interests *i.e.*, consumer *versus* consumer, superior *versus*, inferior coal, "Mechanical" collieries *versus* small concerns dependent on manual labour.

Part IV—Q. 16.—Following the recommendations of the 1925 Indian Coal Committee, the B. N. Railway pursued in earnest the policy of providing private weighbridges to collieries and 8 private weighbridges were installed, but the recommendations of the 1925 Committee were somewhat of a sweeping nature. The Committee did not realise that the installation of private weighbridges would be of use only under special conditions. The object of the Committee's recommendations was to eliminate at Railway Depot stations weighment and adjustment of wagons and to reduce shunting operations. Theoretically speaking, the operations of weighment and adjustments would be a part of the internal operation of a colliery and not requiring the use of a railway locomotive. What this indirectly means is centralising at a common point the wagons loaded by a group of collieries and the layout of a new Railway yard permitting movement of wagons by gravity. Several applications received from collieries for private weighbridges had to be turned down on grounds that loading was distributed over a number of pits making centralisation difficult. In all the 8 cases, where private weighbridges were installed, the collieries had to make a complete change in their organisation and new screening plants and new railway yards had to be provided.

The offer of a rebate of one anna a ton was made in 1925. In 1930, after 5 years, the whole case was reviewed when it was found that the response from collieries was poor. During these 5 years the B.N. Railway paid Rs. 38,000 in rebates and in addition it cost Rs. 98,000 in remodelling the colliery sidings in order to accommodate the weighbridges and to permit of weighment being made. In view of the heavy expenditure which would be involved in remodelling other colliery sidings, if it at any time a big demand arose, it was decided that the offer should not be extended. The collieries that had already taken advantage of the scheme prior to 1930 were, of course, permitted to continue to receive and are still receiving the rebate.

The installation of private weighbridges is undoubtedly in the interests of the railway but conditions have to be created which would give the railway the maximum possible benefit and for that reason can only be applied in cases of opening of new collieries with an estimated minimum output of 5,000 per month.

From the railway point of view, the encouragement that has been given is in the form of a rebate of -/1/- per ton and this would appear to be more than adequate remuneration. The Railway Board accepts the position that where a private weighbridge is installed which conforms to the general requirement of the railway, the railway would allow a rebate commensurate with the accruing benefits.

Part IV—Para. 17.—Neither of the railways are aware of any general complaints.

Part IV—Para. 18.—It is considered that the present system of providing assisted sidings to collieries which has been evolved after years of experience is satisfactory. There may have been delays in the provision of siding facilities but these were mostly due to war time conditions, particularly for non-availability of materials. With a general effort to expedite these cases and the availability of materials improving, there is no reason why the element of delay, if any, should not be considerably, if not entirely, eliminated. The Railways have the urgency for the provision of facilities for loading coal constantly under watch and every effort is being made to see that bottlenecks do not occur.

In the past each railway has dealt with applications for assisted sidings on an individual basis and, in the case of the Bengal & Bihar fields, this has led to an unwieldy growth of such assisted sidings varying in accommodation from 1 to say a 100 wagons. The number of collieries with small sidings is large and this has "locked up" much coal underground. Another result has been in some cases unnecessary duplication of railway facilities and delays to wagons for weighment and adjustment of their loads at depot stations.

The Board suggest that for the future, applications for colliery sidings should be submitted to the railways concerned through the Department of the Government of India in-charge of coal as it is necessary that such applications be dealt with on a collective basis.

The Board recommend that no such applications should be entertained from concerns unable to offer a minimum quantity of say at least 5,000 tons of coal per month and that the provision of facilities for railway working such as weighbridges—where possible without covering coal—a sufficiency of empty stabling and loaded accommodation and for preliminary sorting should be insisted upon.

If these conditions are made pre-requisite to the provision of assisted sidings, railway transport will be in a position to move substantially more coal with a given wagon and power stock. These suggestions, the Board consider, are in the interest of rail transport and also of the coal trade.

Part IV—Para. 19.—Yes. Previously, collieries were charged on actual coal loaded up to 2 tons below carrying capacity and allowed to load generally upto 1 ton above. In order to improve wagon utilisation, collieries are now charged on a minimum of 1 ton below carrying capacity. Also many wagons, due to age and defective springs, are not now permitted to be loaded in excess of capacity. In consequence the percentage of overloaded wagons has increased causing difficulty in Yard working. Collieries also stated that they have great difficulty in being accurate in loading due partly to (a) inexperienced labour, (b) varying specific gravity. They have pressed for reversion to the old system of charging up to 2 tons below capacity, to which the Railways are opposed due to the increased number of wagons that would be required to move the same amount of traffic. An increase in the number of private weighbridges and improvement in the condition of wagon stock will help to ease the position.

Part IV—Q. No. 20.—The following statement gives the extent of mechanical loading plants separately in the fields served by the E.I. and B. N. Railways, together with their working capacity.

In the case of the E.I. Railway the capacities are given under two separate heads, normal and maximum, whereas average loading capacity is given in the case of the B. N. Railway.

E. I. Rly.		Mechanical loading Plants & loading chutes Capacity	
		Normal	Maximum
Total No. of collieries fitted with Mechanical loading plants	46	1,244	2,000
Total No. of Collieries fitted with loading chutes	17	282	500
	63	1,524	2,590

B. N. Rly.		Average loading capacity	
Total No. of collieries fitted with Mechanical loading plants in the Bihar coalfields	30	700	

There are also a lesser number of mechanical loading plants in the CIC fields with an average requirement of 250 open wagons and also in the Talcher coalfields with a requirement of approximately 60 opens per day.

Assuming that the E.I. Railway mechanical, collieries are working to their normal requirements, the total number of open wagons required will be 2,536 daily, of which 310 will be for CIC and Talcher fields. By the end of 1946 it is estimated that the total open stock on Indian railways will be approx. 16,500 more than in 1938-39, i.e., a total of 67,800 (B.C.).

Taking a 12 day turn-round, which is slightly on the high side, approx. 30,400 open wagons would be required for coal and there should be no untoward difficulty in meeting the collieries requirements, on the assumption that foreign railways maintain steady equalisation with the E.I. and B.N. railways with this type of stock. When normal conditions are restored there should be no difficulty in the maintenance of this equalisation.

At present the B.N. Railway is generally able to meet all requirement in the way of working stock and so does the E.I. in the Dhanbad area. The E.I. however is experiencing difficulty in the Asansol area, which obtains the majority of its empties from the Calcutta and industrial area and these are largely covered wagons.

Adaptation of covered wagons for loading by mechanical means.

Experiments are shortly to be carried out with 10 covered wagons provided with roof hatches to permit of their being loaded by mechanical plants.

Para. 21.—The question of applying the grouping principle in the matter of fixing rates for Public Coal from the Raniganj coalfield came up from time to time. It has as a rule been put forward by those interests who stand to benefit from it and has been opposed by those who would be put at a disadvantage competitively by the change. The issue came up for examination by the Railway Rates Advisory Committee in 1936 in Case No. VLV (Messrs. Martin & Co., Calcutta—*versus*—The East Indian Railway). The Railway Rates Advisory Committee dealt very fully with the matter and came to the following conclusions :—

- (I) The existing method of rating in the Jharia field (Group rate) was necessitated by reasons of competition and as this circumstance is entirely absent in the Raniganj field any comparison drawn with the Jharia field is in apposite.
- (II) There was no evidence that the existing method of rating in the Raniganj field prevented the various collieries from obtaining a fair share of the total demand.
- (III) There was no justification to show that group rating from Raniganj field was justified in the public interest. There was no evidence of lack of competition in the Calcutta market or of a monopoly by the collieries which have the lowest rate.

- (IV) There was considerable force in the point that a sudden disturbance of the present system of rates which had been in force for so many years by the adoption of group rating would involve the Railway in a charge of undue prejudice.

This question was again considered by the Railway Board in 1940 and the following are some of the reasons why no change was decided on.

Inevitably a change over from a system of mileage rates to a system of group rates where relative distance is wholly or largely discarded would react to the advantage of collieries that have geographical disadvantage and *per contra* to the disadvantage of those collieries that have a geographical advantage. There is bound to be grave dissatisfaction among the latter group. It is easy to appreciate that with the elimination or of a substantial reduction in the freight advantages such as is entailed by the application of a system of group rate which must have some arbitrary basis, many collieries that are now able to keep up production and make a livelihood may not be able to do so under altered conditions.

It has to be remembered also that the present system of rating Raniganj Coalfields traffic on the basis of distance has prevailed for a considerable time and that the investment of capital in and siting of collieries and sidings has been greatly influenced by the existing system of mileage rates and rate relativities. To alter the system now would cause a serious disturbance of the industry as now constituted and it is particularly the small interests that would be adversely affected.

There is no strict definition of what constitutes the 'Raniganj Coalfields' but the term is generally understood to cover colliery sidings below Dhanbad in the direction of Howrah situated :—

- (i) On the Ondal-Sainthia Chord including the Kasta Branch line to Palasthali.
- (ii) The main line and extensions Ondal to Sitarampore.
- (iii) The Ondal-Baraboni loop with the extension to Gaurangdih.
- (iv) The main line up to Rupnarainpur.
- (v) The Grand Chord line up to Kaloobathan inclusive.

There are some 217 colliery sidings in the Raniganj coalfields as so outlined and the whole of the work of invoicing traffic from these sidings is done at :—

- (1) Ondal (116 miles to Howrah).
 - (2) Asansol (132) miles to Howrah.
 - (3) Sitarampore (138 miles to Howrah).
 - (4) Rosundanga Siding
 - (5) Burnco Siding
- } There serve the particular colliery or concern only.

In the rating of this traffic altogether 27 chargeable points are provided from which rates are calculated.

It would obviously be no easy task to group all these numerous sidings into a small number of groups so as to avoid all complaints or to avoid unduly penalising some interests unduly benefiting others. If there were to be more than one group the allocation of collieries or mileage to several groups would have to be on some arbitrary basis and there would always be pressure from collieries to be put into a lower or the lowest group rate.

In view of the circumstances explained, it is not considered feasible to introduce the group system of rates from the Raniganj field.

The Railway Board adhere to this view.

Part IV—Para 22.—The Railway Board are not in favour of introducing seasonal rates to encourage consumers to obtain their coal in the latter half of the year. Differential rates for the 'busy' and 'slack' seasons have been tried in the past. They were in force, in varying forms, till 1st December 1943 when a 20% increase in freight charges on coal was made applicable throughout the year. An exhaustive analysis of coal traffic by zones was made in June 1941 to ascertain the effect of the reduced slack season rates intended to canvass a greater movement of coal in slack months. The results were very inconclusive.

Soon afterwards, the so called "slack" season disappeared and as far as the Railway Board can visualise, there is not likely to be any substantial difference in the level of traffic throughout the next few years.

Moreover a considerable quantity of coal such as railway, bunkers and the supply to several other consumers is unaffected by any seasonal difference. Further, it is understood that the coal trade are not in favour of differential rates. It seems to be certain that there can be no reduction in the present level of freights for coal including the 20% increase. The only method of reintroducing differential rates would be by making the increase substantial enough to encourage consumers to extend their stacking facilities and compensate them for deterioration. For these reasons the Railway Board would prefer a perennial rate.

It must be noted, however, that if working expenses continue at their present high level, railways may be forced to consider the necessity of raising the level of freight rates on coal.

Part VI—Para 26.—As this question was not clear the Railway Board asked for elucidation and received the following reply from the Secretary, Indian Coalfields Committee: "What the Indian Coalfields Committee requires in reply to item 26 in the first questionnaire is elucidation on the following points in particular, and on any others the Board may consider germane to the issue."

The replies have, therefore, been framed accordingly.

- (i) To what extent will it be considered necessary to utilise high grade coal for

the Railways and is it possible to say how the total requirements will be divided amongst different grades of coal?

- (ii) What is the policy in regard to the future working of Railway collieries, i.e., to what capacity will they be worked and for what grades of coal?
- (iii) In the light of the reply to (i) and (ii) above, what will be the policy in regard to the utilisation by the Railways of the output of Railway collieries, i.e., to what extent will such output be appropriated for Railway use?
- (iv) How will the balance of requirements be met, e.g., by private negotiation advertised tender, etc?
- (v) In purchasing supplies from the trade, what note, if any, will be taken of the complaint universally made by the trade over a period of years that the Railway Board's purchase policy has been instrumental in depressing the coal market and introducing instability into the trade?

The replies below are framed in accordance with the further details supplied by the Secretary, Indian Coalfields Committee:—

- (i) The question does not specify what is meant by 'high grade' coal. It is pointed out that there has never been any standard grading of coal recognised throughout the country other than for export coal. It is generally agreed that the existing nomenclature and classification temporarily adopted during the period of coal control will require early revision and until such time as a recognised classification has been adopted and accepted the Railway Board are not in a position to give the total requirements divided amongst different grades of coal.

Other than coking coal obtained for railway purposes from railway collieries, the aim of the railways will be to use no coking coal provided that suitable qualities of steam coal are available in sufficient quantities. If, however, it is the policy to permit the use of coking coal for other industries on the grounds that this coal was more efficient, then the Railway Department must press their case for obtaining a share of this coal, since there is no doubt that coking coal gives more efficient results in locomotive boilers than other classes. In respect of the general question of the use of coal by railways, it must be always remembered that the country rightly demands and will continue to demand a high degree of efficiency in the operation of the railways and, if this is to be obtained and maintained, the railways must be provided with the types of coal best suited to their purpose even at the cost of other industries for which such classes of coal are not so essential.

Should it be recommended that the railways should use generally a lower grade of coal than they have in the past, the acceptance by the Railway Board of any such recommendation would largely be determined by the relative costs. If efficiency of operation (with which must be associated the loss in haulage of large quantities of ash over great distances) were to fall as a result of the use of lower grades of coal, then it may be taken that the cost of operation will almost inevitably increase, and it is not inconceivable that this might be sufficient to make an increase in rate and/or fares unavoidable.

- (ii) A satisfactory answer to this question cannot be given until the general policy of Government in respect of coal has been decided. There may be said to be two diametrically opposed possibilities; should railways as a national industry be entirely independent of the commercial market and produce their own coal, or should they rely solely on the open commercial coal market.

The Railway Board are in no way opposed to any proposal which would make them independent in the matter of production and supply of coal, in favour of which many arguments might be adduced. Taking a broader view of the position however the Railway Board consider that something between the two extremes mentioned would meet their requirements and those of the coal trade generally. For these reasons the Board consider that certain railway collieries must be maintained mainly as an emergency reserve against interruption in coal production. Any scheme to make railways entirely self-sufficient in the matter of coal must obviously be a long term project.

The capacity to which railway collieries will be worked and what grades of coal are produced will, therefore, depend on the coal situation in respect of production. It is essential that the two collieries of the quarry type be retained as they are capable of yielding large output increases at short notice.

Generally speaking further aspects of the Railway Board's policy may be summed up as follows:—

Other than such coking coal as is obtained for railway purposes from railway collieries, the aim of railways will be to utilise non-coking coal, provided that suitable qualities of steam coal are available in sufficient quantity.

Railways can rightly expect that steam coal of better qualities must be reserved for certain railway services in preference to other users, who with stationary boilers can in point of fact utilise lower grades of coal.

They will pursue with the utmost energy all possible methods affecting fuel economy.

They will assist to the best of their ability all electrification schemes especially those situated near coal producing areas and worked on lower grades of coal.

The Railway Board are also prepared to consider—indeed they have suggested—participation in electrification schemes which, though not justified from the point of view of railway finance, are calculated to be beneficial for the development and economy of the country generally, provided some method could be devised whereby the whole of the financial loss did not fall on railways.

The Railway Board have already undertaken preliminary work in connexion with their policy to reduce as far as possible all "tare" weights and it is hoped that the success achieved in this direction will reduce materially the annual consumption.

(iii) The present output from railway collieries has been boosted from approximately 250 thousand tons p.m. (which, before the introduction of control was reserved entirely for railway use) to 350 thousand tons p.m. Of this approximately 80 to 90 per cent. is supplied to railways representing only 1/3rd of their present requirements. As soon as present abnormal conditions disappear the total output of railway collieries will be appropriated to railway use.

The policy of railways will be to maintain the working of their collieries at their normal economic output and largely to reserve the output from quarries to meet emergency demands.

(iv) This again is a matter which will depend on the general policy of Government adopted on cessation of the existing controls. Assuming that the general policy of Government does not debar it the Railway Board will possibly revert to the prewar system of calling for tenders.

(v) As the future purchase policy of railways will be governed by the general form of Government control decided on, it appears to the Board that there is little to be gained by 'Post mortems'.

They, therefore, confine themselves to saying that they do not admit the implication of the question.

The two facets of railway ownership and purchase policy in the past cannot be divorced. It is maintained that railway ownership can and has contributed towards stabilisation. While industrial demands are heavy, railways can assist the trade by taking less coal from market collieries. Conversely with markets weak, the railway collieries output can be reduced thereby giving support to the collieries. The Board are also of opinion that the main factor leading to depression of prices—when occurred—was the lack of co-operation inside the coal trade itself and the cut-throat competition between collieries which resulted at times of wagon shortage.

Further the future policy of the Railway Board, will be to ensure that their arrangements for purchase shall be such as not to result in depression of the coal market or to introduce instability in the coal trade.

Part IV—para. 28.—Standard types of locos. built since 1926 have been provided with larger grates and when working the same loads as the earlier types of engines they are designed to replace, are suitable for burning coals of a higher ash content providing the ash is not of the kind that readily forms clinker. The percentage of ash content which can be accepted depends on

or not a Railway is heavily graded, as one of the major problems in burning coal of a high ash content is the removal of the accumulation of incombustible matter from the grate. To shorten the time taken during halts for fire cleaning a number of engines built before 1926 have been fitted with rocking grates. Where the reduction in average speed necessitated by frequent stops for fire cleaning can be tolerated, this has enabled the earlier designs of engines so modified to use the same grades of coal as used on the later designs of engines with large grates on certain services.

Since the importation from America during the war of a number of locomotives with large grates the position is as follows :—

B.G. locos with large grates 20% of total B.G. stock.

M.G. locos with large grates 25% of total M.G. stock.

B.G. locos of earlier design modified to carry rocking grates a further 15% of the total B.G. stock.

M.G. locos of earlier design modified to carry rocking grates a further 12% of the total M.G. stock.

The total number of Locos. on 1-4-45 B.G. 5431; M.G. 2216.

When engines which will be replaced by those imported from America are retired from service the percentage of B.G. and M.G. locos with large grates will increase.

Part VI—para. 29.—Locos with large grates introduced since 1926 and those of earlier types that have been fitted with rocking grates when using comparatively high ash content coals demand frequent stoppage during operation for fire cleaning. Such stops reduce the average speed and have a deplorable effect upon operating efficiency and the overall time which engines remain under steam.

It has been the policy for a number of years to fit all locos which are suitable for main line loads and speeds (except those shortly falling due for replacement) with rocking grates, but where however the fire grate is small, good grades of coking coal despite this addition, are essential for heavy passenger and express services in order to hold the fire together at the rates of steaming which are necessary.

Part VI—para. 30.—Future types of locos will be fitted with grates of as large a size as can be accommodated within the dimensional and weight limitations imposed by the service for which they are intended and within the physical limitation imposed by the strength and endurance of the fireman and to assist in the process of cleaning the grates and to save time they will be of the 'rocking' type. Where it is not the intention to use mechanical stokers the power output of locos above a certain size is limited by the capacity of the fireman adequately to feed the fire to maintain steam. It is the opinion of the Railway Board that the dimension of the grates on engines built

since 1926s are as large as the capacity of the fireman can cover considering the types of coal used by the Railways. As it is not the policy to equip engines in general with mechanical stokers, any increase will only result in the loads or speeds of trains having to be reduced owing to the inability of firemen to supply coal of still lower heating value in sufficient quantity to maintain the required power output of the locomotives.

The policy as regards ordering new locomotives may be summarized as follows :—

- (i) To eliminate entirely the need to burn the best grades of coking coal; and
- (ii) To reduce to a minimum the consumption of selected grades containing less than 17% ash in such locos.

In view of what has been stated, elaborate investigations will be necessary to ascertain the effect that the above policy will have upon the size and weight of trains which can be hauled, and it may be found that it will be necessary for some considerable time to use coking coal although not necessarily of the best grades. The Railway Board wish to point out that industrialisation and consequent trade, would suffer very severely if the major transport system of the country was starved of suitable fuel."

APPENDIX A

Statement showing average rail freight charges for coal from Jharia, Chaurashi, Radhanagar and Bokharo-Jharia in Bihar Coal Fields of the B.N. Railway and E.I. Railway Colliery stations e.g. Ondal, Barakar, Rajhara siding etc. etc. to Madras, Bombay and Karachi City by all rail route. (referred to in reply to Part II-Q-6)

Station to	From					
	B. N. Rly. Jharia, Chaurashi, Radhanagar and Bokharo Jharia Fields.			E. I. Railway Colliery stations e. g. Ondal Barakar, Rajhara Siding etc. etc.		
	Rs.	as.	p.	Rs.	as.	p.
Madras	13	9	10 per ton	13	15	0 per ton
Bombay	14	13	7 " "	14	13	7 " "
Karachi	17	10	1 " "	17	1	8 " "

Note:—The above figures denote only the average rail freights and do not include the various cesses leviable on this traffic.

QUESTIONNAIRE II

Item 1 The Railway Department consider that the power to regulate mines and mineral development should vest in the Central Government and that if it is found necessary to control production and distribution, the power should unquestionably lie also with the Central Government.

The present position seems to be satisfactory as the Central Government can take powers if they wish.

The answer to the alternative, i.e., a division of powers between the Centre and the Provinces is an emphatic negative.

Item 2. Yes, the Railway Department would favour the creation of a separate Central Government Department, dealing with all questions pertaining to mines and minerals including coal. This should not, however, imply that Government owned mines which have been acquired or which may be acquired to increase the efficiency and security of supplies for the Railways should be separated from the parent concern. Government collieries should be treated as private collieries owned by the Railway Department in the same way as 'captive' collieries of other large concerns.

Item 3. The structure in the main is considered satisfactory. In the case of railway collieries it has proved most satisfactory in operation and the reserves created have more than once prevented critical situations arising. It is prudent business for large consumers or large industrial group to secure control over at least a portion of their coal requirements. Flexibility in the trade on the other hand is a desirable feature and the middle men perform a useful function to those industries which are not in direct touch with coal producers.

Existing railway collieries supply a considerable proportion of railway demand and, as stated elsewhere, this has had a beneficial effect towards controlling prices. It is thought that the close alliance, if suitably applied, should be a means of continuing this control without a tendency to any undue depression of prices.

As regards iron and steel companies controlling their own supplies, it would be most imprudent for such large consumers to rely entirely upon market purchases in view of the large capital investment involved which might be jeopardised by a corner in coal supplies and the same principle should be applied to the Railways.

The Railway Department view has been incorporated in the reply to sub-para 5 of para 26 of Questionnaire I.

Railway ownership of coal supplies is a most desirable asset to railway operation in India. In the past, criticism has been made that financial considerations in times of depression have resulted in uneconomic prices for coal being obtained by the trade. It is more true that uneconomic competition by the coal producers has resulted in unduly cut prices being offered to the railways, the remedy for which really lies in a better organisation of the coal trade and in Government taking a broad financial outlook in times of depression.

(See also reply to item No. 17).

Item 10. It is considered that national advantage lies in continuing private ownership but this does not mean that the State should not possess 'captive' collieries for its own State-controlled industries. Whatever decision is taken in favour of private ownership, this should not abrogate in any way the right of railway ownership to safeguard their own supplies.

The State should have powers to control and assist production.

Possibly, the best way to accomplish this would be by Government regulating the output of railway collieries in the manner described in reply to

sub-para 3 of para 26 of Questionnaire No. 1 combined with the system of Government's purchasing stocks at a time of over-production and releasing them in times of coal scarcity. By such a system of "balancing stocks" they should be able to control price also at a figure fair to producer and consumer. This would have to be qualified only in respect of the types of the coal which cannot be stocked indefinitely.

Producers and consumers should be represented on the controlling body.

(See also reply to item No. 10)

Item 17. A Central Marketing Agency is not necessary, for 75 per cent or more of the coal production which now goes to railways, iron and steel, or other, industries, and bunkers should be excluded. Again, many large public utility concerns purchase direct from collieries and many industries purchase coal through their own managing agents who in turn deal direct with the supplying collieries.

It is unlikely that such a marketing agency would be as efficient as the highly experienced middlemen who supply the small consumer.

A system of price fixation, allied to Government controlled distribution would be more feasible but the best method of controlling prices is suggested in reply to item 10.

The question of price control related to sales quotas would appear to arise only when supply exceeds requirements when as an alternative to the suggestion made in reply to item 10, it might be necessary to fix an output quota for each colliery and put a 'percentage of quota' limit on production. (This would entail the fixation of different quota percentages for different grades of coal). Though the fixation of output to balance requirements would eliminate much competition and tend to keep prices at a reasonable level, it might be advisable to fix both minimum and maximum selling prices.

The fixation of minimum prices would tend to keep open collieries which might otherwise be forced to close down and maximum prices would tend to prevent 'private' collieries being opened which could flourish only when prices were high. Under normal peacetime conditions, State interference should be limited to making a fair all round allocation or distribution when necessary otherwise leaving consumers to deal direct with suppliers favoured.

Item 18. The complete regulation of the use of coal is not favoured. Partial regulation may be required for the better classes of coal and the use of steam coals should be regulated to ensure that the best qualities are used where they are most wanted.

Item 19. This question has also been dealt with in the replies given to para. 26— of Questionnaire I. Yes, a degree of regulation of use by consumers is considered necessary to ensure that railways obtain the class of coal which can be efficiently utilised in locomotives.

Item 20. Classes of coal that a colliery can produce are known and it would be the responsibility of the consumer or his agent to see that the correct coal has been despatched. It would be

necessary for large consumers therefore to set up Inspection Departments as a check on the collieries which produce different classes of coal. It may be added that such an Inspection organisation in respect of all railway supplies was found to be necessary in the past and will be in the future.

Item 22. During the war, the opportunities afforded by the existence of coal control for rationalising coal distribution with the main object of reducing transport load, were given practical effect. Areas of the country were fed with coal from the nearest fields and, where this was not possible, from fields offering the easiest access over routes not overburdened with the load of war traffic.

2. This system of control distribution continues and the Railway Department consider it most important until railway transport capacity has returned to normal that distribution be rationalised on a basis of economic zones in keeping with the rail transport facilities available. It does not therefore, follow that the economic zones should be determined entirely by considerations of short hauls or low railway freights, though naturally these considerations must remain very important factors in such determination.

3. A map is attached suggesting a rough indication of zones to be served by each field. It is of course not possible to avoid some overlapping.

4. As regards loco coal, it has always been, and will continue to be, the general policy of railways to distribute coals with the least percentage of ash over the longer distances and to use coals with a higher ash content at places nearer the original source of supply.

Item 23. The proposal is of a completely revolutionary nature affecting the entire industrial set up of the country and can more appropriately be dealt with by Industry as a whole rather than by the Transport Agency. It is assumed that the suggestion refers to various large consuming centres and is not of general validity throughout India.

From a purely railway rating point of view, it would not, in theory, be impossible to substitute or the present basis of charge a rate per unit of weight irrespective of haul for transport to these various centres, while maintaining the existing basis of charge for other consumers. It would, however, be quite impossible to assess what repercussions on railway revenues might be as a result of (a) diversion of short distance coal traffic to other forms of transport; (b) relocation of industries developed as a result of their proximity to coalfields; and (c) waste of transport involved in the inevitable rebookings and diversions from a long distance "pooled" area to, or back to, a consumer in a non-pooled area; and it is equally impossible to estimate the repercussions there would be by claims for similar treatment for other large industries. As far as the Railway Department are aware no country in the world is working on the lines indicated in the suggestion for coal or any other heavy basic commodity and the proposal seems thoroughly artificial.

case No. VII of 1928—Purshotamdas Mathraas versus B.N.R.—it has been held by the Railway Rates Advisory Committee that—

"*Prima facie* a rate which is reasonable for a distance of 740 miles cannot be considered to be reasonable in localities less distant from the destination when the goods are carried under the same transportation conditions on the same line of rails and in the same direction. . . . It may be stated that the trader should not be ordinarily deprived of the benefit of his localities being nearer to the market and port of destination as against another less favourably situated and, except for cogent reasons, that discrimination is forbidden by law if it causes undue preference to one locality & trader as against another and that *prima facie* a rate reasonable for a place 740 miles distant would be unreasonable for short distances".

Further comment, therefore seems unnecessary.

Item 24. In the absence of any cogent arguments to the contrary, the Railway Department are unable to agree that the fixation of rail freights on a uniform basis for all qualities of coal is unsound. The application of differential rates would, in practice, offer almost insuperable difficulties complicate the Rates structure and open up a wide field for fraud. In any case the present generic rate for coal is on a basis so low even for the lowest quality of coal that any differential rating would entail the upgrading of freight charges on the superior qualities of coal.

Item 25. Revenue from 'Public' coal in 1944-45 was approximately 8% of the total and in 1939-40 was 7.4 %. All three factors have influenced the existing basis. Consideration of the question under the three subheads could only be academic and of little value. As a general statement it is correct to say that it is quite impossible to calculate the relative costs of carriage for different commodities. The general principle of what the traffic can bear, though not entirely free from defect, is incidentally the one under which low-rated commodities such as coal may be said to be subsidized by the earnings of traffic of higher intrinsic value. The following comparative figures of average earnings (BG) for 1944-45 are relevant:

'Public' Coal	about 3.14 pies per ton mile
Grains & Oilseeds	.. 8.13 Do.
Other Commodities	.. 10 Do.

Item 26. The present low basis of charge takes into account the fact that coal is invariably transported in full wagon loads which are at times despatched from depot station in full loads. Moreover, large consumers frequently receive numbers of wagon loads by the same trains. No reduction of rates for movement in train-loads can be contemplated, and in view of increasing cost of railway operation including costs of coal, an enhancement of rates on coal generally may well have to be considered.

Item 27. By far the majority of 'route' restrictions during the war arose from certain line routes becoming overloaded with military or war traffic. This at times necessitated diversions of coal and other traffics over longer routes.

A zonal system of distribution referred to in Para. 22 combined with adequate postwar shipping should obviate such difficulties.

The matter is under close examination for the future with a view to ensuring that terminal, yard and sectional capacities are more suitably blended and thereby removing any unreasonable route restrictions.

Item 28.—The suggestion probably refers to equitable distribution in the Bengal and Bihar coal-field areas. This is at present arranged by a Railway Liaison Officer who makes the necessary day to day adjustments in consultation with the two railways. It may in future be desirable to continue a similar form of controlling authority. It is to be noted that this interchange is limited to the number of empties available and 'expected' in the coalfields. The control of the overall allotment to the Calcutta Railways from the general pool must remain with the Director of Wagon Interchange.

Item 30.—No. This department would not favour such partial control but the retention of Railway Collieries combined with the proposal in item 10 will assist in the control over prices and towards the achievement of stable conditions. The effect on the uncontrolled sections of the trade is difficult to assess, but the net result might well be injurious to all parties.

Item 44.—This Department has previously advocated and reiterates its opinion in favour of the importation of experts in coal utilisation by Iron & Steel and other industries to advise on the type and qualities of available coal which should in fact be used economically by such consumers in India.

Item 38.—Metallurgical coal is coal that yields coke of sufficient strength and porosity to be used in blast furnaces, or can be treated so as to make such coke sufficiently free from ash, sulphur, phosphorous and other elements that have a deleterious effect on the metal.

A relatively high ash content is not a bar to classification as metallurgical coal provided the slag resulting from the use of high grade Indian

iron ore and average Indian fluxstone is sufficiently fluid. Many low grade coals can probably be washed under modern processes to bring them up to the classification of metallurgical coal in Indian conditions and other semi-coking can be mixed with the full coking coals to make a hard metallurgical coke.

Item 50.—Steam coal is free burning, of high calorific value, suitable for burning in stationary and locomotive boilers. It should not cake in the furnace or produce clinker and for this reason it must carry a high volatile content if used in boilers with natural draft. The employment of forced draft, however, enables coals of lower volatile content and increased coking properties to be used, but it is undesirable in either case that the coal should contain dust. The grade would be measured by the incombustible matter contained in the coal and for Indian coals 17% may be taken as the maximum content for high grade coal.

Item 51.—Probably the greatest waste in the past has arisen from the lack of facilities for using slack coal economically and from the supply of high grade coal for use in stationary boilers which could, if properly equipped, make effective and economic use of lower grades and smaller size of coal. The first choice of the high grades of steam coal should be given to the main transport agency, i.e., the railways, whose conditions are peculiar and difficult.

The Railways in the U.K. have been badly hit in their efforts to maintain punctuality and they have pointed out that the present bad steaming conditions are entirely attributable to the use of inferior coal. Only the very best coal is considered good enough for their main line and suburban passenger trains.

The following comparative table of typical samples of coal from various British fields and of the grades used in India is of interest

	South Wales.	Selected A	Yorks.	Selected B.	Notts & Derby.	Grade I.	Ayr & Lanark.	Grade II.
Calorific value	15,000	12,600	14,000	11,720	12,800	10,800	12,300	.
Ash	4.5%	13%* 11%**	3.5%	15%* 13%**	4.3%	18%* 15%**	12%	24%
Moisture	1%	Not exceed- ing 2%* 6%**	4%	Not exceed- ing 2%* 7%**	8%	Not exceed- ing 2%* 9%**	3.3%	Not exceed- ing 2%* 10%**
Volatiles	14.22%	21.30%* 29.38%**	33%	21.30%* 29.38%**	32%	21.30%* 29.38%**	31%	21.30%* 29.38%**

*Jharia

**Raneegunj.

If the railways are to operate efficiently and economically, the coal supplies must be of the best possible quality.

Item 52—At the present time, there is not sufficient good grade steam coal being raised to meet reasonable requirements. A case does, therefore, exist for restricting the use of this coal. Locomotives, bunkers and cargoes should have the first call. Though it is a counsel of perfection, special industries like potteries should get the type of coal best suited for them; stationary boilers at a distance from the collieries should be supplied with the best grade slack and dust and stationary boilers within a reasonable radius should be supplied with inferior coal.

Item 62—As stated in the reply to para. 26 of Questionnaire No. 1, the Railway Department will assist to the best of their ability all electrification schemes, especially those situated in or near coal producing areas.

Investigations into electrification schemes extending from Calcutta suburban areas up the Grand Chord line towards Moghalsarai, and also in other parts of India, are already in hand.

ORAL EVIDENCE OF DR. H.J. NICHOLS, AND MESSRS. S.E.L. WEST, E. INGOLDBY, W.G. REID AND D.J. ANDERSON, REPRESENTING THE RAILWAY BOARD, recorded on 4TH AND 5TH JUNE, 1946.

Question. Can you tell us about the concrete electrification schemes you have under consideration and the stage they have reached?

Answer. The following electrification schemes are at present under examination;

B.B. & C.I.	Bombay-Ahmedabad	270 miles.
G.I.P.	Igatpuri-Bhusaval.	191 "
	Poona-Dhond	48 "
	Dhond-Manmad	146 "
E.I.	Howrah-Gaya-Moghalsarai Howrah-Bandel-Burdwan	444 "
S.I.	Tambaram-Billupuram	83 "
	Chingleput-Arkonam	39 "
B.A.	Calcutta-Ranaghat	46 "
	Calcutta-Bongaon	46 "
	Southern Section	37 "
		1352 "

The most important of these schemes is the group on the E.I. Railway. We are now examining the possibility of electrifying the track from Howrah to Moghalsarai, a distance of about 400 miles. Our ultimate object is to completely eliminate steam traffic from Howrah to Moghalsarai and the Burdwan loops. A general project survey made by the E.I.R. has been referred to the Railway Board, who have instructed them to contact Messrs. Merz and Maclellan and obtain their advice as to how best to proceed in the matter and to prepare a detailed project. The Railway Board are not in a position to issue sanctions until they know what the financial implications are going to be.

Question. Would the electrification of track between Howrah and Moghalsarai be based on thermal stations, or do you intend to utilise hydro-electric power planned for development in that area?

Answer. The electrification in question will primarily be based on thermal stations. At present run-of-mine coal is cheap; it costs only about Rs.4/- per ton to produce.

Question. How long will it take for these projects to reach a stage when decisions will have to be taken one way or the other?

Answer. After reports from Messrs. Merz and Maclellan are received, decisions will be taken quickly. I should say it will take Messrs. Merz & Maclellan 12 months to complete their E.I.R. survey and 9 months to complete the G.I.P. survey.

Question. What really prompted the Railways to undertake these surveys?

Answer. We desired to meet the wishes of the public opinion by reducing the consumption of steam coal and also to using lower grades coals. We think that for a mile of track electrified there will be a saving of about 200 tons of coal and in certain sections 400 tons of coal depending on the density of the traffic. That is a saving for the country as a whole.

Question. Were you not influenced by commercial factors viz that it would pay the Railways to electrify this section?

Answer. The Railway Board do not expect a satisfactory return on the additional capital involved in electrification. The Railways are prepared to electrify at a loss if it will assist in the conservation of coal; possibly some arrangement can be made whereby these losses are met by somebody else.

Question. In selecting particular spots for electrification, would you tell us whether commercial considerations had influenced your decision?

Answer. One of the reasons for selecting these areas for electrification was that electrification at railways in the coal areas could be done by using low grade coal that is not fit for being loaded into wagons.

Question. Is not the density of traffic on the Howrah-Moghalsarai section large enough for justifying electrification on merits? The demand for railway facilities grow as those facilities increased?

Answer. Yes, on certain sections of the Howrah-Moghalsarai track the capacity of the double track is today approaching its limit. Therefore it is probable that we can find a convincing for electrifying at least a good part of the Howrah-Moghalsarai section, in which case we will be able to go ahead without going round with the hat.

Question. Have you any preliminary idea of the size of the generating station you will need for the Howrah-Moghalsarai track?

Answer. It is far too complicated to make any suggestion as to the number of stations and size, for the size depends upon the number and the number depends on the size. Generally speaking, we are contemplating building thermal stations of our own to meet our approximate consumption requirements. We also contemplate

that in all cases they will be linked with the Provincial Government's grid schemes to permit of drawal from the grid should it become necessary, or in the case of surplus energy, to offer it for general consumption. But there has been no decision yet on specific measures which would apply to the E.I.R. and the linkage of the railway thermal stations with the provincial grid.

Question. I take it that the so called saving between 200 and 400 tons of coal per mile in the event of electrification of track will consist principally of what is known as Selected coal or "A" grade coal ?

Answer. Railways are getting Selected coal today.

Question. I suppose the electrification of the B.A. Railway will be closely linked with the E.I.R. electrification scheme, or are you thinking of having a separate arrangement for it ?

Answer. We have not been advised by the Bengal Government what their plans are for thermal projects, but I presume that Calcutta will have all the power it requires, from the Damodar Valley scheme. It will be necessary to use thermal stations during low water periods.

Question. With regard to the S.I.R., is the source of electric power going to the thermal?

Answer. The electrification would be for about 100 miles south west of Madras up to Villupuram. As far as we know, the Madras Government have plans for both thermal and hydro generation.

Question. Is there no electrification scheme in connection with the N.W.R. ? It is a big job to carry coal to N.W.R. from the Bengal/Bihar fields.

Answer. As you are aware, the Bhakra dam is now beginning to get under way and perhaps we may be able to consider electrification in that area eventually. I agree that it is a remote area which should be considered specially. We experimented with diesel locomotives there, but the experiment was a failure, due to mechanical defects in locomotives built years ago. We have a proposal to run diesel locomotives on the Bombay Sind connection.

Question. Do you expect that the expansion of the G.I.P. power station will be large enough to supply electricity to other new projects ?

Answer. With the public demand for hydro-electric power as it now exists, we are compelled to find new capacity and are building larger thermal stations to meet other purposes also.

Question. Will you tell us about any plans you have under consideration for extending your existing railway system. We are particularly interested in the requirements of coal, which the new developments would necessitate.

Answer. Our intention was to lay 500 miles of new track a year, including the metre gauge. Electrification would reduce the consumption of coal by a million tons at least in a year. I do not suggest that all these schemes will materialise, but I think 60% will materialise within the next 10 years.

Question. In connection with the scheme of connecting Khandwa with Hingoli, which passes very close to the Pench Valley coalfields, would it not be advantageous to extend the metre gauge into the coalfields ? Then you could supply from the Pench Valley coalfield direct to Western India. Again, since you are constructing a bridge across the Ganges, will it not be advantageous to the coalfields if you take the metre gauge forward, to the Mokameh Ghat area, so that the transportation of coal may become easier ?

Answer. We shall examine all these in detail when we contemplate linking the broad gauge to the metre gauge system.

Question. But may we take it that it would be an advantage to extend the metre gauge system to the coalfields ?

Answer. That is not very simple. For, this means providing 300 to 400 sidings to feed the main line. The metre gauge does not touch the coalfields, and all collieries are at present equipped with broad gauge sidings.

Question. That is exactly why we are suggesting the linking of the Surguja, Datla, Barakar and Annuppur coal bearing areas on the metre gauge section. When during the next 10 or 15 years Railways must be prepared for very much increased traffic, why not bring in the metre gauge system in those areas where development is likely to take place ? Would it not be better to lay emphasis on metre gauge development rather than on broad gauge development ?

Answer. That is right. It will be a positive relief to all sections if coal can be moved by the existing metre gauge track supplemented by the lay out of further connections in the important coalfields.

Question. You have stated in reply to our questionnaire that it may take two years or more for the Railways to resume normal working. May we take it that this question of normalcy has reference to what the conditions were in pre-war days ?

Answer. Yes, partly. We are all hoping that the post-war normalcy will be on a slightly higher standard than prewar. We have learnt several lessons during the war, which we propose to make use of, and we hope that the whole standard of railway operation will be on a higher level than pre-war.

Question. There are two aspects of this problem : one physical involving question of track, rolling stock, stores and possibly trained personnel ; and the other human involving the contentment of all grades of staff, elimination of weariness and revival of energy. The human aspect is of a short-term nature, but about the physical, aspect of reverting to normalcy in regard to track rolling stock etc., do you think that two years will be needed ?

Answer. At least two years. By that, I am referring to matters like getting back the standards of maintenance of locomotives and wagon stock to anything like what they were pre-war. There is at present a lack of stores also.

Question. What is the biggest problem to-day ?

Answer. It is

Apart from the physical and human elements you have mentioned there is a third aspect which is not normally realised by the ordinary man in the street. That is that railway operation is not a self-contained entity operating in its own circle. For instance, the Hur trouble in Sind on the N.W. R. puts restrictions on night running traffic ; passenger trains have to be slowed down for the safety of the public ; and these in turn slow up goods traffic. When the passenger trains are halted or delayed, the effects are felt right through the whole pipe. The effect of trouble, say, at Delhi is felt somewhere else in some form, may be down at Dhanushkodi. The other day we had communal troubles in Bareilly and the railway staff could not get to their work. The running programme was upset. The whole of the effect goes back to the coalfields and spreads all over the country.

Question. I appreciate these factors, but these influences outside the control of the Railway Administration will perhaps disappear in a few months. But in regard to the physical aspect, is it your suggestion that your present position, in the matter of wagons, track, engine power, railway facilities, marshalling yard facilities etc. is such that it will take two years to get back to normal ?

Answer. Yes, we are at least two years behind in our principal administrative and re-sleeping programmes. All engineering works are behind schedule. Standards of maintenance have deteriorated. There is insufficiency of stores and of trained staff. We are up against the question of the time required to rehabilitate stock. For instance, coach work which should take about 3 weeks takes two to three months now.

Question. What is the stock position of locomotives as compared to the pre-war period ?

Answer. The tractive power available is actually higher on the broad gauge, and this is also true on some of the metre gauge sections, but if as at present the engines cannot be kept running without constant breakdowns in service, the effect of increased tractive power is not felt.

Question. What about wagons ?

Answer. We have actually increased the number of wagons on paper, but, as in the case of locomotives, it is very difficult to assess the material increase in wagons facilities.

Question. Would you say that your operational efficiency as such is worse today than before ?

Answer. In my opinion, it is worse compared to the pre-war years. We had better use of wagons which until 1942-43. From about that time, our utilisation of facilities began to drop. For various reasons, outside our control, we are unable to move wagons in any substantial degree as we should. Only the other day, the Central Advisory Council asked us why the service from Madras to Delhi could not be speeded up. The reason mainly is that the track has to be laid and unless this is done, we cannot speed up trains with safety.

Question. In your written reply to question 13 you have assumed that there will be loading throughout the 365 days of the year, i.e. there will be loading throughout the week. Is this feasible ?

Answer. This is linked up with the evening up of loading throughout the week to provide for an even flow of traffic. As far as the Railways are concerned, this is feasible, and there is no reason why the collieries should not fall in.

Question. Assuming 1400 wagons on the B. N. R., on the basis of 300 loading days in a year, the B. N. R. offtake will be 8.91 million tons a year, leaving for the E. I. R. 19 million tons to handle. In order to move the 19 million tons, 3,000 wagons, (not 2720) will be needed. Are there any plans for increasing depot and pilot capacities to deal with such increases ?

Answer. If the basis of loading is to be increased to 3,000 wagons a day, expansion of depot and pilot capacities as well as clearance capacity will be needed.

Question. Will it be feasible to put the programme through within three or four years ?

Answer. Perhaps it will. But it will be fair to consider the bottlenecks or restrictive features as at present and when the increased coal comes round. At present we are faced mostly with labour difficulties at places like Agra East Bank where transshipment of coal takes place from broad gauge to metre gauge for places beyond Ahmedabad and to Kathiawar. But if the Chirmiri-Burwadiah connection is put through, touching virgin areas, the coal for Western India may be routed through this section, which will render needless additional facilities at Agra East Bank. We have also bottlenecks at Katni and Ajni. We are examining what we can do to increase the capacity at Ajni so as to handle 450 to 500 wagons. Katni is a very different proposition. The yard is enclosed at the moment by territory which prohibits any lateral or lengthwise expansion. We may lay a line one towards the north and another towards the south-west so as to avoid Katni altogether for coal traffic. The Katni-Bina section is one which in normal times was not heavily used. It is laid with very inferior rails, and as it is a gradient section, it is in crying need of bridge strengthening. In 5 years, Katni should be ready to deal with the increased coal traffic you envisage.

Question. Could you tell us something about other bottlenecks ?

Answer. The Benares bridge is a bottleneck at the moment but it will be completed in 3 years' time. The present difficulty in moving upcountry coal is not so much due to physical limitations as because of operational problems such as the state of the locomotives, their maintenance, engine failures etc. These factors militate against the full use of existing facilities. The Allahabad-Moghalsarai section is a little bit awkward but it is being attended to and will be put right in less than 2 years. On the Jhajha-Dinapore to Moghalsarai section there is a large programme of engineering works, and the major works will

be completed within two years. The Itarsi-Bhopal line on the G.I.P. will probably have to be doubled at some future date and possibly the Agra-Delhi line also. But this is not a question which will be decided by coal traffic. Once these bottlenecks are removed there will be no trouble for movement of the quantity of coal you anticipate.

Question. Various individual collieries have made general allegations that their outputs and despatches are limited by railway restrictions such as non-availability of facilities loading and non-adherence to wagon allotments. The collieries put the blame on the Railway Administration, not so much on efficiency of operation in this respect but on the actual method of operations. If we tell you what should be the rational production, field by field, and section by section, after looking into the production of each group of collieries, do you think your operational system or the physical outlay of the various tracks in the coalfield areas will be able to cope with the demands presented in this manner?

Answer. I think the fulfilment of each demand will have to depend very much on its merits. For instance, a colliery may have a siding running from the south down to the south-east approach, but it may be easier to move coal on some other route, say, the N.E. route. The question arises whether the wagons can be loaded there, and there are various other factors of local application to be settled on the spot.

Question. We have been looking into your Annual Red books and find it difficult to understand the poor performance in the matter of Railway operation that they disclose. Take for instance, the wagon mile per wagon day. You will agree that this is certainly a good indicator of efficiency of operations. The figures which I have been able to cull out of these books are as follows:—

In 1944-45 the wagon mileage per wagon day is shown as 40.

In 1939-40 when the outside influences on which you laid so much stress were comparatively non-existent, the figure was only 41.3.

Coming to the various railways, I find that the figure for the E.I.R. in 1944-45 was 35.2, i.e., a wagon travelled 35 miles in one day. Looking into the average speed statistics or average speed of goods trains on the E.I.R., it is 8.2. The average speed of through goods trains on the E.I.R. is 9.33. Putting the two figures together, is it a correct conclusion that your wagon works on an average only 4 hours a day?

Answer. Yes. That is correct. For 4 hours out of 24 hours the wheels are turning, as is the case in other countries of the world. Here is an analysis of the movement of a wagon:

The responsibility of railroads is about 60 per cent, loading and unloading 30 per cent and delays because of trade practices 3 per cent and delay due to observance of Sundays and other holidays 7 per cent.

The 4 hours a day is in actual effect a fairly reasonable result, although it looks completely unreasonable.

Question. Do you consider it a satisfactory state of affairs?

Answer. No; we are not satisfied. The lighter the load the quicker the speed. But Indian railways have today the practice of putting every thing behind the engine which they can get hold of. They have gone undoubtedly too far especially since the condition of the engines is what it is today. With the end of the war, we are in a position to ensure that no old engine is given a load over its actual capacity to draw.

Question. Can you say how this factor of efficiency was increased—almost doubled—in the operations of the B.A. Railway during the war?

Answer. It was because the B.A. Railway were given new engines and all the wagons they wanted, and the special feature was the improvement of their track, terminals and communications.

Question. If you divide the one thousand miles of the East Indian Railway into water-tight compartments and put each in charge of separate independent heads you are liable to experience delays unless there is no close liaison with the contiguous division. It has been suggested that this method of administration might be responsible somewhat for the delays and might be contributing to operational inefficiency. What are your views on this allegation?

Answer. My own view is that in the days when we had districts instead of larger divisions as at present, the former were more self-contained and far more water-tight compartments than the divisions now are; but there was this very important factor that the executive officers were able to give more detailed attention to their jobs, and that applied equally to every department commercial, operating and mechanical. We had more intensified supervision than is possible on the divisional system.

Question. Have you any statistics about the capacity of various marshalling yards?

Answer. We have in the Railway Board statistics showing the performances of all marshalling yards. They show the number of wagons dealt with and it is a very useful comparative record which has been in use for many years.

Question. Take Moghalserai, where between October 1944 and December 1946 the maximum number of wagons dealt with during any month is shown as 86,497. I wonder if that is the capacity?

Answer. It has done over 90,000.

Question. When you say 90,000 can we conclude that the marshalling yard capacity at Moghalserai is in the region of 3,000 wagons a day?

Answer. I should think it is somewhat over that. That is of course assuming that the shunting engines are in good condition.

Question. How would you explain the average detention of 25 hours to through loaded wagons at Moghalserai?

Answer. Because the upper division is unable to take more, and because of the non-availability of engines. The Moghalserai marshalling yard is not a bottleneck. The bottleneck is the inability to move up traffic from Moghalserai. From Moghalserai to Allahabad we have a single line section and also a double line section. There is plenty of capacity in this area, but it feeds towards Cheeki and is not concerned with the North Western system. Capacity beyond Allahabad comes within a single line section. It is planned to run 13 trains from Allahabad to Cawnpore, and that is not an excessive number for a single line section. The present figures show only 11 trains running. Beyond Cawnpore to Tundla we have capacity for 11 trains and are doing actually about an average of 9 trains. Between Tundla and Ghaziabad we have section capacity of 8 trains whereas we are doing five to six. This takes us by stages to North Western India. On the other route, leaving Moghalserai via Lucknow, there is capacity to deal with 14 trains and a serious bottleneck at the moment is the Benares bridge which is under repair. There is detention of all trains for hours, because no traffic is allowed over the bridge for sometime due to engineering works. We have 14 trains capacity via Fyzabad and 7 trains are now being diverted to Papan, Rai Bareilly and Lucknow. Beyond Lucknow we have another track Lucknow—Moradabad with capacity to handle 12 trains, but we are doing only 10. We are now in process of completing doubling the section right up from Lucknow to Bareilly. At Bareilly there is virtually a double line track, because of the alternative line via Chandausi down to Ghaziabad.

Question. How long does a through train from Gomoh to Ghaziabad take?

Answer. The time lag between the despatch of a wagon from a colliery and arrival at Ghaziabad is in the neighbourhood of 9 days. We try to make full train loads at Asansol, Dhanbad and Gomoh.

Question. How would you define the term "turn-round"?

Answer. "Turn round" in the broadest sense the time that elapses between a wagon being despatched and returned. For instance, a wagon loaded today; its turn-round is the lapse of time before that wagon is available again for its next loading. Taking up the total stock available on the Railway and making allowance for stock out of service and the number of wagons loaded, we find that a wagon is loaded about every 11 days.

Question. Am I correct in interpreting what you have said in this way. On, say, 4th June you had 4,000 wagons on your systems everywhere, and the total stock of wagons in your hand is 10,000. So the turn-round is 10 days?

Answer. That is taking the overall picture. The actual formula for turn-round for statistical purposes, is somewhat different and a little more complicated. This takes into account ownership of wagons, wagons received by the mother railway, wagons transhipped, wagons from other railways, and wagons temporarily out of service divided

by the total number loaded per day. The formula is very useful for comparison, as it will show whether there has been deterioration or improvement.

Question. Have you tested these figures by occasionally checking up the number of wagons in the whole system, from one end to another, on a particular day, and the number of wagons loaded on that day?

Answer. There are many ways of checking up these figures of turn-round of wagons. In the case of traffic required to get through urgently, individual railways select their stations from end to end to keep a definite record of a loaded wagon from the time of its invoicing at the start to the time of delivery over that mileage. In that way and in other ways also the actual movement of wagons and loadings are checked up.

Question. On the operational side, I find that goods engine on the E.I.R. does only about 75 miles a day. Would you comment on this speed?

Answer. There are two statistical figures relating to engines. One is engines on the line, and the other engines in use. 100 miles a day for an engine for goods traffic is a good figure. The layout of a railway has also a lot of influence on the figure. On a line like the B.B. & C.I. which is one straightforward broad-gauge route, traffic is either up or down and there are no branch lines. That type of railway should be able to obtain a better figure than for instance the N.W. Railway which is a mass of little branch lines.

Question. Coming now to your planning for the future, in respect of improved total facilities in marshalling yards, depot sidings etc., given a definite target of movement from place to place and section to section, would you align your plans accordingly?

Answer. Certainly, but it will not be for coal only. We will have to link coal up with other industries. I would emphasise the point that it is the definite policy of the Railway Board that every available effort should be primarily in the interests of rehabilitation in whatever form it is before we embark on anything new. We are now examining all the plans that are being put up by different railways for enlarging different marshalling yards. There are many expensive projects for conversions, relaying of different marshalling yards and big junctions, and these are being examined in detail with specific relation to the consequential capacities in and out and with whatever knowledge we have or can secure of what traffic is going to move over those routes.

Question. We know that in 1945 about 420,000 tons of coal were shipped from Calcutta for the purpose of feeding railways and 146,000 tons on account of industries. Has it occurred to the Railway Administration to have their own steamers to ply from Calcutta down the coast?

Answer. As far as I know there is no project of our running steamers.

Question. I gather that you are importing from overseas 19,290 wagons in the course of the year plus 5,400 wagons by the end of 1947 from indigenous production. The number of wagons is better than it was pre-war. Of these 24,000 wagons how many are of the open and how many of the covered types?

Answer. Of the imported 19,000 it is roughly half and half.

Question. You have told us in your written statement that the total stock of open wagons on Indian Railways will be approximately 67,000. Considering that the coal traffic is almost 66% of the total goods traffic on the railways, is the number of open wagons adequate?

Answer. No. There are many ways by which you can make a comparison. One is total tonnage. But that is not of much value because the load and how far it goes are more important. We think that the best figure for comparison is ton miles. The net ton mile proportion of coal to the overall figure comes to about 40 per cent of the total traffic.

Question. Is there an equally insistent demand from other commodities for open wagons as there is from coal?

Answer. No. Coal absorbs by far the greatest number of open wagons. The total number of wagons required for meeting the demands mechanical loading plants in collieries will be 30,000.

Question. Almost every colliery which has mechanical loading appliances has told us it is not getting the number of open wagons needed. What are your comments on this allegation?

Answer. The estimate of stock available now is 66,800 broad-gauge open wagons, plus what we expect from importation. It may be 10,000. But it does not make allowance for replacement of old wagons or those which are irreparable and broken up. That figure is quite impossible to determine now. But our chances of being able to provide 30,000 open wagons will be considerably increased by the fact that we are getting so many more wagons.

Question. You have had experience of the seasonal demand for wagons not only in respect of coal but for various other commodities. Should it not be the objective before the Railways concerns to provide facilities to meet the peak demand?

Answer. I do not think so. Although it is extremely desirable, I very much doubt whether the Railways would be justified, according to the Theory of Railway Economics, to spend the taxpayer's money on buying a lot of wagons. 15 to 20% might be lying idle for four months in a year. But it is certainly their duty to provide sufficiency of transport to move, even during the peak period, traffic up to reasonable limits. Pre-war there were times we had 10,000 wagons lying idle. I am not prepared to say that we should have increased stock to meet the peak demand; no Railway in the world has accepted that as an economic arrangement. In the coming years when there is going to be greater industrialisation

and when the seasons at present largely fixed by agricultural considerations become outmoded, there is going to be a great change, and we all hope that these factors are going to level up so much that there will be a perennial demand for goods traffic. In my opinion, there is definitely not going to be any slack or busy periods then as in the past.

Question. Can you tell us about the tests which you carried out on the new type of covered wagons?

Answer. Certain wagons were turned out, but they have got mixed up and have been sent all over the country. Really they have not been tested. Two or three of them have been traced and the last I heard of them was a fortnight ago.

Question. Do you consider that the design of covered wagons capable of being loaded through chutes from mechanical platform is a major problem on the Indian Railways?

Answer. Experiments have proved that damage is caused to covered wagons by mechanical loading. If you have open hatch covered wagon there is need to confine them to coal traffic. There is also the danger of leakage of water which makes them absolutely useless for other goods. I do not see any possibility of designing wagon with the hatch and chute so linked as to eliminate the possibility of damage to wagons and consequent leakage.

Question. What are the views of the Railway Board on the question of collieries owning their own stock of wagons?

Answer. On principle, the Railway Board is opposed to private ownership of general service wagons. They would deviate from this principle only in the case of very specialised wagons for special services.

Question. Are we correct in assuming that new wagons you are building are of a standard type, i.e. of standard weight, so that the load capacity will not vary?

Answer. All new wagons are of a standard type of 22 tons.

Question. With reference to rail-road facilities in the Central Provinces, have you received presentations from the Provincial Government about their projects in the Pench Valley? Presume that you have been in touch with Provincial Government in this respect and have seen their plans?

Answer. Yes. We are in touch with Provincial Projects.

Question. In the Pench Valley there are several requests for sidings pending with the Railway Board, and I understand that the argument whether it should be a branch line or an assisting siding. What is the latest position?

Answer. We have to settle the question. Pench Valley coalfield is well situated for meeting the demands of Western India, and it was for that reason that we were thinking of an extension of the metre gauge line to the Pench Valley.

Question. Do you consider that the scheme of priority allotment of coal to certain consumers should continue ?

Answer. Speaking from the Railway point of view, yes, though the railways are not much concerned as long as we get our coal for their consumption. We are merely the transport agency for the whole of the coal and are attending to the supply of it according to priorities. We want a control, a definite directive, as to priority of supply, but we are not concerned with the type of control.

Question. Do you think that this directive could be issued without bringing in the Railway Board ?

Answer. There is no objection at all.

Question. There is a suggestion that the daily wagon allotment should be made on the basis of wagons not only on hand but including wagons not arrived but expected to arrive. Is this desirable ?

Answer. We make allocations based on certain expectations, and I do not think it desirable to cut expectations out.

Question. Is it not desirable that you should leave these expectations out from the estimates, and leave them as a "pocket of empties" available for use when there arise some difficulties and bottlenecks in the system ?

Answer. Well, either course is feasible, but I would not like to suggest anything new to those who have been doing this coal allocation for 50 years. I would hesitate to dictate one way or the other, for it depends on experience.

Question. Before the war the collieries were permitted to send in what is called "alternative indents", and they were also sending indents for a larger number of wagons than what they really required. Is it advisable to restore that practice ?

Answer. Not when the wagon supply is shorter than the demand.

Question. There are complaints about the Railways being unable to make good the short allotments on previous days. Is any remedy possible ?

Answer. I think it is undoubtedly true in certain cases. Sometimes it must happen, but I should think that in a very large number of cases the short allotments are made good on subsequent days.

Question. You have admitted the necessity of continuing the present control over distribution. What type of authority do you think should be invested with the duty of executing the task of rationing railway facilities and controlling distribution ?

Answer. In our opinion it must be primarily a Central authority. The whole thing should continue under Central control so long as the present situation continues.

Question. Would you support the idea of a Committee on which, for instance, the Railway Board and the trade will be represented ?

Answer. I think something on those lines is inevitable when the control is removed. But when there is a shortage of transport, there should be a Department to look after the day-to-day working.

Question. For the purpose of maintaining necessary control, would you rather have the present controlling machinery continued, or would you like to have a Committee of the type I have suggested ?

Answer. For the present I would prefer the existing machinery to continue. As far as we are aware, the control which was exercised prior to the present control was a control in name only. It is only now that any real control is exercised.

Question. Is it your opinion in the matter of overloading and underloading of wagons that a reversion to the old practice is desirable, i.e., one ton overload and two tons underload ? The reversion to that practice may mean an improvement in the present wagon position.

Answer. No. Overloading is a definite source of danger.

Question. Regarding the systems of 10-hour and 20-hour pilot working, could you tell us from your experience what you consider the ideal system for the provision of wagons to the collieries from the point of view of quicker movements of coal ?

Answer. As we stated in our written reply, the 10 hour system is not applicable to collieries with mechanical loading plant. In some cases the 20-hour system seems better and in others the 10-hour system. I think it is hard to prescribe a standard practice for all collieries. In arriving at this conclusion the recommendation of the 1925 Coal Committee on the subject was fully considered and I can say that the present practice is the best.

Question. I appreciate your point with regard to collieries with mechanical loading equipment which are having 20-hours working, but in regard to collieries not so fitted, it is alleged that it takes as many as three days for a wagon to be withdrawn from the collieries after loading. How can these delays be avoided ?

Answer. If those delays are reported to us or to the Railway concerned direct, they will be looked into, with benefit all round. If there is any element of inefficient operation which goes to make for delay, it can be put right by departmental action.

Question. Regarding weigh-bridges, you will remember that a rebate of 1 anna per ton was given by the Railways to collieries which installed their own private weigh-bridges. Has the concession been withdrawn ?

Answer. Those who had the weigh-bridges installed continue to get the rebate. It is only in the case of any new installation that the concession has been withdrawn. The reason for withdrawal of the concession is that the response from

collieries was found to be poor, and during the 5 years of experiment the railway had paid a rebate of Rs. 38,000 and spent a lakh of rupees on remodelling collieries to accommodate the weigh-bridges. There was undoubtedly heavy expenditure in remodelling the railway sidings, and this led to the withdrawal of the concession.

Question. Am I to understand that financial considerations prompted you to withdraw the concession?

Answer. The reason was that it was fully realised by both the trade and the railways that the installation of weigh-bridges might need considerable remodelling likely to interfere with other work.

Question. Surely you will agree with us that the installation of weigh-bridges is really a great improvement and convenience for traffic?

Answer. I quite agree. We welcome it.

Question. Therefore should not the absence of weigh-bridges be considered to be an inefficient legacy from the past?

Answer. It is linked up with the existence of a large number of very small collieries and sidings. A weigh-bridge to serve a self-contained large colliery is a great benefit to the coal industry and the railways. But where one has to collect coal from a series of small sidings, one wagon here and one wagon there, and bring them to one section perhaps serving 50 to 60 different sidings—that is a different matter. The principle of having self-contained weigh-bridges which can be operated without interfering with movements from other collieries' sidings is an excellent one and we support it.

Question. In your written reply you have indicated your willingness to renew the rebate, provided the weigh-bridges conform to the general requirements of the railways. Would you please elucidate?

Answer. By that we mean the elimination of the necessity to collect of wagons from various outlying places, and bring them to one central point for railway movement, subject to the area concerned being suitable for construction of weigh-bridges and land being available for the purpose.

Question. It has been alleged that a rebate in freight is not granted at the time of taking delivery of wagons even when there has been a short delivery, and that correspondence regarding refund is interminable. Could you tell us something about that?

Answer. There is one practical difficulty which arises in the case of coal moved in a number of wagons booked for one consignee. The Station master concerned would have no means of knowing the exact quantity despatched. Therefore, the mere fact that one or two wagons are short would not put him in a position to know as to what percentage of the coal booked has not arrived. That is a matter for investigation.

Question. Would you not agree that, having accepted the principle of collecting freight on delivery, to ask a person to pay freight for something which he has not received causes hardship?

Answer. I think in actual practice, it is generally found that the missing wagon reaches the next day after the payment of freight, or within a few days thereafter. Many of the cases happen like that. There are difficulties connected with authorising station masters to accept a portion of the freight. The remedy seems to be to return to those conditions under which claims were normally settled within thirty days.

Question. Has there been an increase in pilferage of coal in transit recently?

Answer. There has been a vast increase in general theft and pilferage due presumably to the war and general lawlessness. I am afraid there are many cases in which the railway staff themselves are involved. We are doing our best to check pilferage. It is very difficult to secure efficient and trustworthy watch and ward staff in sufficient numbers. They are largely influenced by the black market, and the general shortage of goods gives them sufficient inducement.

Question. Could you tell us the position about railway responsibility for goods lost on the way, pilferage, etc.?

Answer. It is conditioned by the terms of booking. If it is on railway risk, the Railway is responsible. If on owner's risk, the responsibility is shifted on to the consignee. There is nothing to prevent coal being despatched in open wagons on railway risk, but the rate is 20% higher and varies in different railways.

Question. What is your practice in regard to the demand by the consignee for re-weighment of wagons at destinations before he takes delivery?

Answer. The coal booked on railway risk which has not undergone transshipment is re-weighed on payment of a small fee. Coal at owner's risk is not generally reweighed except in exceptional circumstances. We are contemplating a revision of the rates structure, and it is proposed to lessen the gap between the present charges for owner's risk and railway risk.

Question. Would you let us know to what extent coal freight rates are likely to be affected by such a revision?

Answer. Probably not at all. The contemplated revision will probably exclude of any consideration of coal. Coal is on a special scale known as the Bengal Coal scale which covers most coal in the country. It is, to my mind, a general revision which will affect all traffic except coal.

Question. Turning to the question of sidings, the consensus of opinion amongst collieries regarding the grant of new sidings, is that your administration is characterised by delays, discrimination and inequitable terms. What are your comments on this?

Answer. Delays have been unavoidable in war time, and will continue to be so for some time to come. The sleepers are not there, nor is the staff in position to carry out surveys, and there is bound to be considerable delay, as compared to normal times. I cannot accept the allegation of discrimination. The refusal to grant sidings may have been influenced in certain cases by the realisation that small holdings were not in the general interest of the trade of the country. If such discrimination was exercised during the war and during the period of coal control, I can only say that I consider it an extremely good thing to have happened. The need of the country was for the good grade coal, and there was a surplus stock of the lower grade stuff which nobody wanted. Increased sidings would have considerably added to the production of this quality of coal. To deal with the next allegation *viz.*, inequitable terms of assisted sidings, these terms are more or less on the same lines as assisted sidings for any industry or trade. I think that the allegation is refuted by the fact that a very large number of requests for assisted sidings were complied with.

Question. I would like to know whether the Railway Board have any objection to transferring to an independent body composed both of the railways and the industries the power to decide the grant of sidings.

Answer. We have no objection. We would welcome the setting up of such a body, as long as the body works on approved principles, the main one being that sidings should only be provided to collieries which could turn out a minimum of 5,000 tons of coal per month. We are giving our views from the transport angle. If an amalgamation of the smaller collieries could be achieved making the production of each holding relatively higher, it would be good for all from the transportation point of view.

Question. Have you ever considered the question of substituting sidings by a net-work of ropeways?

Answer. No. I do not think that it has been considered by the Railway Board, but I have heard that certain firms or collieries have their own schemes of developing ropeways to bring coal to some central dumping points. The more concentration of loading, the better it is from the point of view of the railways.

Question. Do you think it is a feasible proposition, knowing the coalfield areas as you do, from the point of view of transportation?

Answer. Perhaps not so feasible in areas which have already been developed, but it might be considered as a major factor in any new development.

Question. The suggestion was also made to us that sidings in future should be constructed by the Railways at their own expense. There should be no such thing as assisted siding. This would give the Railways a wider discretion in the matter of alignment as well as in the matter of grouping. What are your views on the suggestion?

Answer. I thank it is a practical proposition if thereby we can reduce operating costs and expedite the turn-round of wagons; but it would lead to demands from the small collieries and possibly make them more reluctant to grouping, though each colliery will claim that it is entitled to sidings at Railway expense. If the suggestion is coupled with grouping, it might be considered.

Question. The suggestion was put to your consideration regarding the grouping of freight rates in the Raniganj area. You have stated that you have come to the conclusion that no case has been made out for grouping of freights in that coalfield. Have you any views about the grouping of freight rates in regard to the Bokaro field?

Answer. The question has not come to the Railway Board as yet. May be, it is being considered by the Railway concerned.

Question. I have before me your existing rates which appear to be discriminatory in the matter of distances. For distances up to 200 miles the rate is 165 pie per maund per mile, for 201 miles to 400 miles it is 113 pie per maund per mile, and for distances over 400 miles there is another scale. What I would like to ask you is whether this system is not calculated to give an undue incentive to long load traffic?

Answer. Yes, it is a fact. It implies maximum benefit to long range traffic at the lowest possible rates.

Question. From that angle does it not increase delays, increase turn-round in respect of wagons and intensify transport problems?

Answer. That generally is correct, but there is the point that in movements over long distances, wagons do not necessarily return empty. They would be employed at the other end. Carrying coal over long distances is an essential need of the country which it is the duty of the Railways to carry out.

Question. The point is that if coal is moved to a distance of 400 miles, it pays 59 pies and on the other hand when it is moved to 800 miles, it pays 60 or 62 pies only. The point made is that these rates have been designed to encourage long distance traffic and there is no incentive to the siting of industry in a proper manner nearer the resources they are going to use. Do you agree?

Answer. The rates seem to give such a picture. I agree that there is no incentive to the siting of industry in a proper manner.

Question. I have before me the South African railway freight rates. They start from 1 to 4 and up to 750 miles with gradual rise. There is no differentiation for different blocks of mileage, but they have a maximum figure. For over 750 miles, there is a maximum freight of 19.2 s. gross. Have you ever considered applying this system for India?

Answer. It seem to be the same as ours, but achieving in a slightly different way the figure of 19·2 s. gross per ton of 2,000 lbs.

Question. It is only in regard to the maximum figure given there. If any coal moves beyond 750 miles, it pays just one freight. Do you consider that any system like this is feasible for India? I do not know how far the telescopic system of freights ties in with the idea of regionalisation, but here is an alternative system achieving the same objective.

Answer. I quite appreciate that the rates are designed to give some relief to consumers situated at a great distance.

Question. In dealing with freight questions, difficulty arises in interpreting Sections 42 and 43 of the Railways Act. These particular sections relate to undue prejudices and discriminations in railways when they were under individual companies. Would you advocate a change, now that all the railways are the property of the State?

Answer. They are designed to protect the user of the railways rather than railways themselves.

Question. It was to safeguard the interests of the consumers in the matter of transshipment from one system to another that the railways were asked under this Act to see that there are no unreasonable delays in the movement of traffic from one line to another. What I would like to ask is now that all the railway lines are the property of the State, would you consider this part of the Railway Act as a hindrance in the matter of differential rates or pooling of rates which may be necessitated by broad national considerations?

Answer. That is possible, but it is a matter of very high policy.

Question. In the event Government deciding upon zoning of supplies on the lines suggested by you or on different lines, would the principle of pooling of railway freights in the sense of providing equality of freight rates, coupled with the equalisation of prices, be acceptable to you?

Answer. That would be revolutionary.

Question. Very fortunately we have the advantage in this country that all the railways are owned by the State and therefore if the State decided that freights should be pooled together at a particular centre in order to equalise the price in that particular centre are not the railways expected to follow suit?

Answer. They would naturally do so.

Question. You have expressed your views against the application of differential rates to different qualities of coal. Is that really impracticable and unworkable?

Answer. I consider that this would be advantageous to nobody.

Question. Industry sometimes gets into very bad habits. Old established companies are using Dishergarh coal of first class quality for burning

in their boilers. The textile mills at Ahmedabad may become very adamant over using Dishergarh coal. We may not want to prohibit it, but we may say that if you want Dishergarh coal, you will have to pay an extra 20 or 30 per cent. surcharge on the freight but you will get the second and third class coal at basic rates. We may at the same time want to discourage such things so that there is a larger use of the second class coal. You have accepted the principle of differential rates in the matter of C.P. coal for G.I.P. Railway requirements. What are your comments on the suggestion?

Answer. There is one special rate for shorter distance and after that two rates for C.P. coals.

Question. Then again the suggestion has been put up to us that there could be differential use in the matter of coal when it is used as a raw material for processing and when it is used for burning. Chemical industries are in an infant stage of development today and Government might want to encourage them. With the growth of chemical industries which use coal for carbonising purposes and for bye-products, they may be well entitled to demand special rates for the coal which they utilise, not for burning but for processing. I am asking you to project your mind to the future and say what the industrialisation plans of Government may demand in this respect.

Answer. I wonder whether there could be any guarantee that this coal would in fact be used for the purpose intended.

Question. Is not a bigger principle involved, viz., to what extent the railways are expected by Government, as a matter of policy, to encourage industrialisation, forgetting their principal function as a carrier or as a commercial concern?

Answer. It may be said that the principle can certainly be applied as in the case of Tatas, who for raw materials and coal have different freight rates. I think the same has been applied to paper.

Question. I have divided the locomotive service into two categories, one passenger, goods, shunting and departmental, and the other being water pumping, electric generation and miscellaneous. I would like to know the various classes of coal you consider suitable for these services.

Answer. Really there are two types of passenger services—one is fast heavy passenger service. Unless the engines used for the above purpose are provided with coal which will stand on the line, they cannot be of any use. If we do not get coal which is of cooking type, we cannot get sufficient effort from the boilers to keep to time with this heavy passenger traffic. There are other passenger trains which may be pulled by engines which also have to take heavy loads, but at the same time require a fairly good grade of possibly non-coking steam coal. We are in difficulty about coking coal. As I said we are using engines specially designed for that type of coal.

On the goods side again, we have two types of goods engine, one which has broad and the other which has narrow fire boxes. It might possibly become necessary to not only increase the speed but also the load. Under those circumstances, the coal we want must of necessity be of fairly good class of steam coal.

Question. A statement was made by the Railway Board that it is now the accepted policy to have all the locomotives converted or adapted to use inferior grade coal. Does that mean grade I or grade II coal?

Answer. Unless the locomotives are specially designed, which seems an impossibility we cannot use low grade non-coking coal.

Question. What design are you adapting for the new boilers and new locomotives?

Answer. They are given wide fire boxes to burn other than metallurgical coal but it is impossible to convert an ordinary engine of the express type. So the question of conversion does not arise.

Question. But you have converted 75% of your broad gauge stock to the use of inferior grade coal by putting in large grates?

Answer. Yes, they were purchased with large grates. They were imported from America, but those which were converted ultimately are uneconomic to maintain.

Question. What is the XD type of Engine?

Answer. It is designed to burn other than metallurgical coal. It is coming in wider use both for goods and for passenger traffic. The point is that where steam coals are involved, the ash percentage is 36%. In metallurgical or coking coal, the ash percent can be reckoned as from 10 to 17 1/2%. We cannot use coal with ash content between 26 and 33 if we are going to maintain our efficiency.

Question. Will you call the grade II coking coal high ash coal?

Answer. No.

Question. Have you examined the question of using pulverised coal?

Answer. Yes, in 1920 we tried to use pulverised fuel, but we had to give it up for various reasons.

Question. It has been suggested to us that the purposes for which you need coking coal in locomotives can be equally well served by the supply of soft coke. What are your views?

Answer. I do not think there is any hope of burning soft coke, because we have not got the blast. It is considered quite impracticable, even when it is turned into briquettes.

Question. Could you tell us broadly the measures of fuel economy which you have recently adopted?

(i) Railways have, after a series of running tests, settled a coal ration for a particular trip, and that amount of coal is supplied to the drivers. From the running of the trips, the railway concerned are able to find out whether a particular driver has been fairly efficient in the use of coal.

(ii) Some railways have been using cards for each driver and each engine, so that if an engine

proves to need a high level consumption, it is sent to the shop for overhaul or for finding out what is wrong with it. So also if a driver is consistently showing higher consumption of fuel the matter is taken up with him.

(iii) Cinder is being used in pumping stations wherever possible. Slack is used in smithy fires. The policy now is to design boilers to conserve heat by a system of valves, thereby avoiding waste of steam when the engine is remaining stationary.

Question. Have the Railway Board ever employed a special fuel technologist to study the problem of fuel consumption, and if so were any recommendations made by the technologist?

Answer. We have our own staff who are continuously employed on studying the efficiency of boilers, effects of the various forms of super-heated tubes, pumps, etc. Changes are introduced in the designs in the light of the experience gained from the various experiments.

Question. You have suggested that the Iron and steel works should import certain experts from other countries to advise them in the matter of better utilisation of coal. I was wondering whether you have any substantial data to go by which gives you the impression that the iron and steel works have not been utilising their coal properly?

Answer. It is not a question so much of utilising their coal properly, but of whether they could not run their show efficiently if they went to a little more expense for using lower grade coals. They have always insisted in the past that high grade coal is essential for their industry. We do not know whether their demand for high grade coal is really justified in every case. That is why we made the suggestion. In the case of coal for Railways, we are going into the question of utilising lower grade coals in the locos in a fairly thorough manner. We have been undertaking experiments on readjustments to be made in the locos to enable them to use lower grade coals. We do not know whether the iron and steel works have done anything of that sort in regard to the use of coal in their works. We thought that, if an outsider could examine the working of the iron and steel works and say whether they could run their show by making certain adjustments and modifications in the machinery with lower grade coal, such a course would be extremely useful for India's coals as a whole.

Question. Almost the same language and diction might be used by the iron and steel industry in regard to the railways. They would say the same thing that the railways should try to use lower grade coals and that enquiry should be conducted in this respect. By and large neither the iron and steel works nor the railways have shown any great desire to substitute their use of better grade coals by lower grade coals. If you are impressed with the necessity of conserving high grade coals, it is time the question is looked into as to how this can be achieved without loss of efficiency.

Answer. We would welcome an expert enquiry.



25. ORAL EVIDENCE OF KHAN BAHADUR G. FARUQUE AND MESSRS. E. H. B. HEYSHAM, N.K. BOSE
AND O. R. TUCKER REPRESENTING THE EAST INDIAN RAILWAY

Question. To arrive at an estimate of the future carrying capacity of a system like the East Indian Railway, should one work on a six-day or seven day loading week?

Answer. Loading targets at present are so high that if all the coal offering in the coalfields has to be moved, an evening out of loading on a 7-day basis is very necessary from the point of view of railways.

Question. Assuming that the total off-take from the Bengal/Bihar coalfields is about 28 million tons in the next two or three years, and if the B.N.R. daily loadings were to be 1400 wagons they would be able to carry about 8.9 million tons per annum. Working on the basis of a 300-day loading year, the East Indian Railway would be expected to carry about 19 million tons. That would require 3,000 wagons a day on the East Indian Railway. Am I correct?

Answer. That is right. The estimate prepared by us for the Railway Board was on the basis of a 7-day loading week, which would involve 2,500 to 2,600 wagons a day. Out of 3,000 wagons, about 1,450 wagons would be required for coal-loading for upcountry above Moghalsarai and about 1,500 to 1,600 wagons in the down direction.

Question. On the basis of a 7-day work, which in the opinion of several experienced people is not feasible, we will need about 2,720 wagons for moving the coal out of the coalfields in the next two or three years. Your present performance indicates a movement of between 2,000 and 2,200 wagons a day. Assuming that the movement of coal downcountry towards Calcutta remains at the present level, what specific recommendations would you make in respect of pilot services, depot capacities, section to section working, marshalling yard, terminal facilities, etc. on your system?

Answer. Well, that involves the movement of an additional 400 wagons in the up direction. We may find difficulties in moving all these wagons in the present circumstances. Numerous and complicated adjustments may become necessary and these can be ascertained only after proper study.

Question. Allegations have been made that on the East Indian Railway, however speedy the engines or however good the facilities, there is always a block somewhere, first on Gomoh-Adra side, then at Moghalsarai, Lucknow, Cawnpore, Gaziabad and so on. Have your Administration taken any steps to remove these so-called special lines of defence against the movement of traffic?

Answer. Quite a large number of steps have already been taken. We have taken in hand improving the Grand Chord line, putting in additional locs. Doubling of lines between Lucknow and Bareilly is in progress. Once these are completed, there will be a great improvement in traffic. There is no difficulty at all in moving

traffic up to Moghalsarai, but above Moghalsarai there are difficulties about engine power and rolling stock. Locomotives have not been as good as they should have been, as deterioration has set in during the last four or five years. We have also to deal with the repairs to certain bridges, especially the Dufferin bridge at Benares, which are being carried on under extremely difficult conditions. We have also difficulties further up, e.g. in the Allahabad-Lucknow area.

Question. Is it a fact that your section to section movement today is not worked up to capacity? What I mean is that your Moghalsarai-Allahabad track has capacity to move X number of trains a day, but you are moving X minus.

Answer. It is correct, but there are sections which are absolutely up to capacity. We are not utilising our capacity to the full extent, one of the main reasons being the trouble we are experiencing with our engine power.

Question. At Moghalsarai, where your difficulties start, has the marshalling yard ample facilities to cope with about 4,000 wagons a day?

Answer. The average is about 85,000 wagon a month i.e. 3,000 a day. It does not require any structural alteration to extend capacity there. Minor alterations would do.

Question. Has the E.I.R. any control over the supply of wagons for coal traffic? What sort of discretion have you in calling upon the pool to supply you with a specific number of wagons from day to day?

Answer. After 1943, the resources of the three Calcutta railways were more or less pooled, and when there were shortages of wagons for the coalfields, the three railways were required to assist one another. The Railway Board appointed a Director General of Railways whose main function was to co-ordinate the balances to be held by the three railways, keeping in view priority demands like coal as against other demands, and the contribution they should get from the wagon pool. As regards coal, in the beginning the Coal Commissioner used to send monthly estimates of requirement to the Supply Department at Delhi. These were reviewed against the availability of coal. Then the estimates were passed on to the Railway Board who, in conjunction with the Supply Department, decided what the target for coal loading should be on the two railways. On the basis of that target, contributions from the wagon pool were made to the group as a whole, i.e., E.I., B.N. and B.A. The day to day operation of that pool is now in the hands of the Railway Liaison Officer, Mr. Tucker. If one railway is short of wagons, or targets are not being kept up, he intervenes and arranges an adjustment between the three railways.

Question. Could you tell us the various purposes for which open wagons are required all over India ?

Answer. Open wagons are commonly used for the transport of minerals other than coal. During the war there was a marked increase in the use of open wagons especially for transport of heavy machinery, timber and various other things.

Question. Do you think that all that demand collectively equals the demand for open wagons from collieries ?

Answer. I cannot tell you. The demand for open wagons from collieries was about 1,400 to 1,500 wagons per day, divided about half and half between the E.I. and B.N. Railways.

Question. We are told that the stock of open wagons on the Indian Railways is approximately 67,000 in 1946. Is it very reasonable to assume that you have got enough open wagons to meet the requirements of the coalfields for this type of wagons ?

Answer. As conditions change and the demand for open wagons for other traffic decreases, and with the additional supply which the railways are going to have, it should be possible to meet the requirements of the coalfields.

Question. What about your tractive power ? Have you got sufficient engines operating on the East Indian Railway ?

Answer. We have about 1,850 engines on the E.I.R. We have had no replacement of locomotives for some considerable time. Recently a large number of locomotives have been imported into the country, and there is a scheme for replacing our existing locomotives with those that have been imported. What power we have is sufficient for our purpose at present and, if judiciously exercised and efficiently maintained, would be able to meet the extra demand which the coal industry might place upon the railway to move the additional 400 wagons a day. The number of existing engines that could be condemned in the next 2/3 years is small, because there is going to be an increase in the demand for power following on the increase in regular traffic as a result of industrialisation.

Question. What do you consider an engine should travel on an average in one day ?

Answer. A goods engine should do about 85 to 90 miles a day on an average on a single line. Passenger engines do on an average about 200 miles a day. I think the mileage our engines are giving is comparable with engines in similar service on other railways. Engines do not give higher mileage where traffic is dense.

Question. Is your figure the lowest in India ?

Answer. Conditions in one railway are vastly different from those in another. For example, on the E.I. Railway almost 30 per cent. of the engines are being utilised on short runs like colliery pilots. We have the highest coal loading and

more short-run pilots. The E.I. do not do much mileage and I think I am correct in saying that in their case they do 8 miles an hour. It is the number of wagons that a pilot has put into sidings and drawn out that is the criterion of efficiency rather than mileage.

Question. During 1944-45 the speed of goods trains was indicated to be 8 miles an hour. Do you consider it a satisfactory performance ?

Answer. I agree that the wagon performance has deteriorated, and there is scope for substantial improvement.

Question. The figure of turn-round of wagons given by the Railway Board is 12 days. Do you consider this turn-round a satisfactory figure ?

Answer. Talking of individual railways, no railway has got this turn-round. E.I.R. admittedly has got the highest and that is 11.4. But when you separate it for open and covered wagons it is a different picture altogether. Open wagons have a longer haulage and unlike covered wagons, they are loaded on the return journey.

Question. Talking of turn-round and wagon mile per wagon day, I wonder whether your administration has ever followed the system of check and counter-check in the way of tracing the history of a particular wagon load from the time it left the coalfield to its destination.

Answer. We had, before the war, a fairly elaborate system, record was kept of almost every wagon, for example, wagons going into docks. But during the war, for various reasons, these records were not kept, and the intention now is to re-introduce them, enlarge them and make them more efficient.

Question. Is it your opinion that the allotment area at Dhanbad has become too unwieldy ?

Answer. Yes, in the sense that loading is getting concentrated on certain points, mostly west wards round about Katras and Kusunda. A number of collieries producing inferior grade coal have been opened in this area, with a capacity of loading 1 or 2 wagons a day only. This concentration can be attributed to the fact that collieries producing good quality coal have dropped their raisings, and naturally there is a market for inferior grade coals which consumers, in their failure to get better quality, are anxious to get.

Question. What sort of difficulty do you experience in picking and distributing wagons for the various small collieries ?

Answer. The supply of wagons to inferior grade collieries takes longer time in view of the siding difficulty.

Question. I should like you to give us your opinion, if you care to, on the suggested re-designing of sidings, realignment of railway lines in the various collieries and putting them on a scientific basis by centralising the depot stations.

Answer. Admittedly from the railway operational point of view we would prefer greater concentration of loading. We desire the good

offices of the Coal Commissioner's organisation, when sanctioning new collieries to be opened, to see (1) that such concerns are able to offer a minimum quantity of 5,000 tons of coal per month, and (2) that they provide all facilities for railway working, such as weigh-bridges, accommodation for stacking of empties and loaded wagons. We lose a good deal of time in the slow movement of wagons for sorting etc. when dealing with one or two wagons loaded in small collieries.

Question. If the qualification for a siding is that a colliery should have a minimum output of 5,000/6,000 tons a month, that would shut down a very large number of collieries. What objections are there from the operational angle to the supply of a siding to a colliery loading, say, 1 wagon a day.

Answer. So far, we have given a large number of sidings to small collieries. But it has affected railway operations adversely. Instead of a pilot going to one colliery and drawing 60 wagons in one shunting to the depot and despatching them straightaway to destination, in the case of smaller collieries, the pilot goes to 20 or 30 different collieries and takes one or two wagons from each. This takes about three times more engine hours. Then when the wagons arrive at the depot station, they have to be weighed and necessary adjustments in their loads made. This means additional delay. The East Indian Railway is particularly unfortunate in that they have already got numerous sidings of 1 or 2 wagon accommodation.

Question. Could you tell me whether it is practical to sit down today and make a clean sweep of the present system of operations in the coalfields area and re-design and re-align the sidings in each field?

Answer. Certain areas have gone beyond the stage when you put them right. Underground support and other problems are involved.

Question. In future what is going to be your policy in the matter of granting sidings?

Answer. A colliery should be given a siding only when the output is not less than 5,000 tons a month and it has a weigh-bridge and facilities to load coal in closed wagons intended for upcountry places. In putting forward the suggestion we are to a great extent guided by the Reid Committee Report in the U.K. which has made recommendations on the same lines.

Question. Admittedly, conditions here are vastly different from those on which the Reid Committee reported?

Answer. Variation will be very little regarding small collieries with low outputs. The unit may not be the same as in this country, but conditions are almost similar.

Question. It has been suggested to us that these sidings should be constructed at the cost of railways. What are your views on this suggestion?

Answer. All our sidings are assisted sidings, and the cost is shared between Railways and collieries roughly in the proportion of 50:50.

For the railways to bear the entire cost without any safeguard as to whether adequate traffic would be forthcoming is a proposition which they could not agree to. In many cases railways provided sidings but for years together they got very little out of them by way of traffic.

Question. Is it feasible to group together a few small collieries for the purpose of being given one siding?

Answer. Our experience has been that instead of going in for centralisation and concentration of loading, small collieries are after splitting.

Question. Is it proposed to open a new allotment office for Bokaro, Ramgarh and Karanpura coalfields?

Answer. Not for the present. When new lines are opened up in these areas, a divisional or sub-divisional office at Bokaro to control traffic might be necessary.

Question. Have you any views regarding the question of 10-hour or 20-hour loading?

Answer. Talking from practical experience we found that there could be no hard and fast rule. If the 10-hour system is adhered to uniformly and rigidly, it will no doubt involve doubling of lines and alteration in depot capacities etc. I think the existing practice serves the industry well.

Question. Is it possible to revert to the practice of making good a short allotment of wagons the following day?

Answer. In present circumstances of wagon shortages the E.I.R. administration are opposed to this idea. When we get back to normal working conditions, this will be easy of solution.

Question. Would you consider it desirable to revert to a system of free loading, i.e., no rationing of wagons, no allotment?

Answer. Present circumstances are extremely difficult, and in the interests of the country, some sort of control should be exercised. The ideal would be to make free supply of wagons, and where free supply is not possible, there should be a quota of wagons for each colliery, provided the colliery is in a position to load them. But a great deal would depend on the wagon position.

Question. In regard to loss of coal en route are you taking any special precautions to prevent pilferage?

Answer. The protection is there to the extent that we have a Watch and Ward staff at different places. From figures collected of the loss that took place in transit before the war, I was surprised to see that in the case of Ahmedabad the average loss did not amount to more than about 3% or 3 1/2% of the total amount of coal despatched. In the case of coal coming to the Calcutta Electric Supply Co., the loss was hardly 1%. A great deal of this small loss could be attributed to evaporation of the moisture etc., in the coal, but during the war we had more serious complaints of coal being lost in transit. There is no use denying that a certain amount of pilferage did take place during the war.

Question. A complaint has been made that if ten wagons are sent and only nine arrive at the destination, the consignee is forced to pay the full freight for all the ten wagons. Have you any comments on this ?

Answer. I think that the person who had made the complaint did not qualify it by saying that this would only apply in cases where more than one wagon was booked under one invoice, in which case he had to pay the freight for the wagons, irrespective of whether all the wagons had been received or not.

Question. Is it not a hardship for a man if he is asked to pay freight for a wagon which has not arrived? Then again his complaint is that he has to enter into interminable correspondence for getting the refund.

Answer. There are very few firms in this country who are receiving wagons in full rake or half rake under one invoice. I do not think there is tremendous hardship, because most of them pay under the freight bill system.

Question. Would you not agree to a limitation being placed on the period within which claims should be settled ?

Answer. That seems a good ideal to work at. We will bear that in mind and take steps to see whether anything can be done in that direction.

Question. You know that there is grouping of freight rates in the Jharia coalfield. A similar suggestion has been made for the Bokaro field. Would you care to express an opinion on this ?

Answer. We have resisted such grouping of freight rates in the case of Raniganj field. The question of grouping of freight rates in the Bokaro field has not come up to us so far, and when it does, we will consider it.

Question. The consumption of coal in the E.I.R. during 1939-40 was 1.8 million tons. In 1943-44 it was 1.94 million tons. Is this increased consumption represented partly or proportionately by increased traffic ?

Answer. Not entirely by traffic but this is partly due to the inferior coal supplied.

Question. The goods carried in 1939-40 were 28.63 million tons while in 1943-44 there was a drop of 2 million tons to 26.672 million tons. What I am anxious to find out is why, with increased coal consumption, you have carried 2 million tons less of goods during this period. What effect has the supply of coal had on operation ?

Answer. Consumption of inferior types of coal affected railway operation adversely. From December 1943 there was considerable engine failures due to bad coal.

Question. What types of coal do you require for your various services ?

Answer. Of our total requirements 30% should be selected grades for mails, express and passenger services. 40% should be better type grade I coal

for goods service, 20% should be grade II for light goods and shunting services, and 10% should be small coal for miscellaneous purposes. The points we look at in our coals are ash content in the case of Jharia coal and calorific value in other coals. Coking coals are better and we would like to have them though it may be arguable whether they are essential. We can use Raniganj and Ramnagar coals provided the moisture and ash contents are not high.

Question. There is a universal complaint that the East Indian Railway is more conservative than other railways in the matter of experimenting with the use of inferior grades of coal. What truth is there in this allegation ?

Answer. The East Indian Railway is ahead of all other railways in the matter of experiments. Although E.I.R. collieries were raising the best coal, we consumed slack and run-of-mine as a measure of economy. A summary of the experiments made on coal grading trials in the East Indian Railway during 1934 is submitted. There is a permanent Fuel Economy Department on the East Indian Railway. Among the functions of its officers one is to economise the quantity of coal consumed and another is to experiment on the use of different types of coal. We have also carried out some experiments on the change of boxes and sizes of grates with a view to using inferior coals.

Question. You are aware of the proposed electrification of the Railway line on the East Indian Railway. What are your views on electrification ?

Answer. I got a note from the Railway Board from which I understand that they want to increase the speed of the trains without affecting the existing train loads. If the railway line is electrified, we can keep our train loads and at the same time improve the speed and general operation. My own view is that it would definitely be of tremendous help.

Question. What do you think of the suggestion that the responsibility for making allotment of wagons should be entrusted to a statutory body on which the producers, consumers and railway authorities should be represented ?

Answer. The railways would welcome such a statutory body which would give definite clear cut instructions which the railways could carry out. As a matter of fact, until 1942-43 a body known as the Wagon Basis Committee was functioning by mutual agreement between the railways and the trade and not only gave priority in the matter of allotment but also worked out the basis of supply to each colliery. The Committee was abolished in 1942-43.

Question. Allegations have been made about inadequacy of personnel on the East Indian Railway in respect of sickness and emergency reserves. Is there any truth in this allegation ?

Answer. The allegations are not correct. The strength of the relieving staff employed is on the high side, though it may not be possible to use all the staff.

OFFICE OF THE RAILWAY LIAISON OFFICER
(CALCUTTA AREA), EAST INDIAN RAILWAY
HOUSE, 105., CLIVE STREET, CALCUTTA. To :—

THE CHAIRMAN, COALFIELDS ENQUIRY
COMMITTEE, CALCUTTA. No. K. 10, DATED 27TH
JUNE 1946.

Coal grading trials—1934. At your enquiry in Calcutta on Friday, the 21st June 1946, you asked for information about the Coal Grading trials conducted on the East Indian Railway in the year 1934. These trials were carried out on instructions from the Railway Board to whom the results were sent. The following remarks have been compiled from the incomplete records now available in the E.I.R. Office and from my own notes on 26 tests which I supervised.

The object of the trials was to determine relative values of merit for the coals then in use. Such values of merit might have been used to allot coals to the services for which they were suitable, and, combined with the prices of the different coals, might have been used to compare their costs for steam raising at different consuming points.

A chemical analysis of the different coals was made with the object of comparing subsequent supplies from each colliery with the supply as tested.

Method of Trials. Coals under trial for passenger services were tested in 4-6-0 type locomotive using superheated steam at 180 lbs. working 8 Wpn and 7 Up Express between ASANSOL and HOWRAH for three trips. Goods coals were similarly tested on a 2-8-0 Goods engine working three trips on a Goods train from ASANSOL to JERDWAN and back.

The pounds of coal consumed and pounds of water evaporated were measured with a high degree of accuracy, a hundred points being allotted to each 5 lbs. of water evaporated per pound of coal consumed. Points were deducted for drop in steam pressure, use of pricker, time lost in cleaning, and for feed water temperature above 212°F. Points were added for safety valve blowing.

Results. From the E.I.R. files, it appears that the following coals were classed as suitable for passenger services :—

Barua	Giridih Mail	Victoria
Barua	Jharia Khas	South East Barabani
Barua	Ghansadih	Jogta
Barua	Chanch	Kuardih
Barua	Charanpur	Giridih Ordinary
Barua	North Adjai	

The following coals were classed as suitable for passenger services :—

Barua	Lakurka	Samla
Barua		
Barua	Satpakuria	Bokharo
Barua	Bhurkunda	Khas Jambad
Barua	Bengonia	Khas Satgram
Barua	Madhabpur	North Mosila
Barua	Kirkend Sultanpur	

The following coals tested on the Passenger services were found unsuitable:—

Anil Kusunda	Northbrook
Khas Joyrampur	Katras
Madhuban	Kargali Pit.
Siduli	Kusunda Nyadee.
Gaslitan.	

The following coals were found unsuitable for use on the Goods services :—

Northbrook	Kargali Pit.	Kusunda Nyadee.
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Analyses. Coals were analysed by the Railway Chemist & Metallurgist but the official records are not now available, the attached a statement being from my own record of the 26 tests which I supervised. (I noted that the analysis of GRD Ordinary—Item 15—appeared incorrect, probably because of bad sampling, as the coal did not contain as much as 20.11% ash).

Evaporation. Again from my own notes, the evaporation per lb. of coal burnt, after weightage on account of drop in steam pressure, use of pricker, and any time lost in fire cleaning, varied between 7.55 pounds for a good sample of Lodna, and 4.23 pounds for Kargali Pit.

Conclusions. As mentioned above, the test results were submitted to the Railway Board and it is not known what conclusions were drawn.

My personal conclusions from the 26 tests which I conducted were—

(a) Ranigunj and Jharia coals are equally suitable for steam locomotives.

(b) The percentage volatiles is, with these coal not an important factor, coals with between 20% and 35% volatiles giving equally good results.

(c) The suitability of a coal for locomotive use can be fairly well estimated from the ash content which should not exceed about 14% for the Express services and about 18% for the Goods services with moisture up to 2%.

(d) Coal may be supplied with a high proportion of small and dust; provided a good fire-bed is obtained such coal gives good results.

(e) Different coals require different styles of firing it is very important to supply the same coal constantly to the same men and not to keep changing or to mix coals from different collieries.

(Sd)

Railway Liaison Officer
(Calcutta Area).

Copy forwarded to the Secretary, Railway Board, New Delhi, for information.

Copy forwarded to the Chief Mechanical Engineer, East Indian Railway, Calcutta, for information.

Statement showing analyses of Coals tested.

NOTE.—I noted at the time that probably the analysis of the Giridh Ordinary coal had not been taken from a fair sample and that the Ash content was less than 20%.

Test	No.	Name of coal	Moisture	Fixed Carbon	Volatile Matter	Ash	Calorific Value B. Th. U/lb.
1	8	Lodna (14A)	.92	64.23	23.36	11.49	13502
2	16	Poidih (DGR)	1.80	51.35	34.35	12.47	13384
3	12	Bokaro	.08	60.00	25.24	14.68	13285
4	27	Giridih Mail	.59	61.98	24.31	13.12	13685
5	7	Jharia Khas	.82	66.64	22.44	13.19	13286
6	13	Charanpur	1.88	54.97	32.26	10.89	13550
7	18	Chanch	.86	57.57	27.00	14.57	12691
8	21	Victoria	.79	59.25	25.18	14.78	13267
9	35	Poidih (DGR)	1.91	49.84	35.31	12.94	13384
10	11	Kuardih	.41	49.71	33.95	15.93	12718
11	17	S. E. Baraboni	2.35	48.50	36.30	12.85	12956
12	30	Sendra Bansjora	.62	60.92	19.58	18.80	12889
13	25	Kargali Quarry	.68	57.46	24.58	17.28	12978
14	33	Bermondia	2.00	50.42	31.32	16.26	13037
15	28	Giridih Ordinary	.42	58.35	21.12	20.11	12691
16	22	Swang	.10	54.35	28.37	17.18	12889
17	24	Central Kirkend	.68	65.34	20.08	13.90	13384
18	32	Jogta (14)	.78	63.43	18.73	17.06	13087
19	31	Jogta (13)	.43	62.16	21.38	16.13	13266
20	34	Joyramdanga (PN. 1)	4.28	48.49	32.88	14.35	12295
21	29	Lodna (12)	3.86	47.40	34.13	14.61	12565
22	19	Joyramdanga	1.42	54.31	32.05	12.22	13087
23	5	Lakurka	1.02	61.45	23.38	14.15	13230
24	6	N. A. Jambad	.70	50.71	35.29	13.30	13088
25	15	Bhurkunda	.63	54.25	31.90	13.22	13483
26	10	Begonia	.57	55.33	27.30	16.80	12718
27	36	Sendra Bansjora (12 & 13)	.66	61.32	19.55	18.47	13087
28	9	Gaslitan	.34	59.94	22.38	17.34	12560
29	20	Khas Joyrampur	.42	60.14	24.59	14.94	13285
30	14	Khas Satgram	2.46	50.15	32.56	14.83	12771
31	23	Katras	.78	63.73	19.82	15.67	12889
32	26	Kargali Pit	.77	56.00	22.30	20.93	12625

26. ORAL EVIDENCE OF MESSRS. D.O. THOMAS, G.E. EWING AND C. CHELAPATHI RAO REPRESENTING THE M. & S. M. RAILWAY,

Question. Have you any statement showing the total consumption of coal on your railway for the last few years?

Answer. Here is a statement (attached) giving the information. It also gives a break-down showing the purpose for which different varieties of coal were used.

Question. What is your experience regarding Bengal coal?

Answer. We receive a mixture of different types of Bengal coal, including Bokaro and Kargali coals. The Mixture is not quite satisfactory, as much of it comes in as dust coal.

Question. Have Talcher and Kothagudium coals proved satisfactory on your mail and passenger services?

Answer. Talcher is quite satisfactory even for mail services.

Question. Have you had any reason to complain about the quality of coal supplies in the last 5-6 years?

Answer. The present quality of Villiers' Talcher coal received is very poor. The latest analysis of this coal is as follows:—

Dates of analyses.

30-4-1946 12-7-1944.

Moisture	10.5%	11.9%
Volatile matter	29.8%	31.8%
Fixed carbon	40.5%	49.5%
Ash	19.2%	6.8%
B.T.U's	9769	11823

Remarks.

High ash and low heat content.

Both M. & S. M. and Villiers' Talcher coals contain a lot of shale and stone (nearly 1.5%). The quality of Bengal sea-borne coal is fairly good, but due to frequent handling enroute, it contains a lot of dust. Sea-borne supplies which constitute one third of our requirements received in 1944 were of better quality. Railway borne Bengal coal are selected grade and of fairly good quality, excepting Kargali and Bokaro coals, which contain a large percentage of ash. The trouble with railborne Bengal coal is that due to frequent changes in programme and due to a large number of types being supplied, the quality is not uniform. On the other hand, we are receiving a fairly uniform quality of coal from Kothagudium colliery.

Question. What sort of limits do you impose on the calorific value and ash content of coal for use in your railway?

Answer. Anything up to 10 per cent ash content and about 10,000 to 12,000 B.T.U's as calorific value suit for our mail and passenger service. Certainly not below 10,000 B.T.U's.

Question. What is your experience with C.I. and C.I. coals?

Answer. Chirimiri coal is very good, but Burhar coal is not satisfactory.

Question. I find that the consumption of coal on your railway during the last 7 years has gone up by 100,000 tons. Does this figure correspond to increased traffic activities?

Answer. Yes, traffic has gone up?

Question. Has any attempt been made on your railway to introduce mechanical adaptations to your locomotives to enable them to burn low grade coal efficiently?

Answer. We are increasing the spacing of fire bars on most of our locomotive engines and also certain engines have been fitted with rocking grates to enable inferior coal to be consumed.

Question. Have any other measures of economy been introduced in your railway?

Answer. In certain places on the metre gauge we are using wood fuel for shunting; and slack coal for pumping purposes. We have a rationing system in the Hubli district which we want to extend to other districts also. We have had surveys conducted based on the consumption of coal for trains on each trip.

Question. Does that give you suitable indications as to the state of the locomotive using that coal?

Answer. That depends on the condition of engine and various other factors. At present our locomotives cannot be said to be in first class condition, nor have we the same efficiency of staff as we had before. We had a lot of extra hands and many of them had to be promoted as foremen and drivers on account of the war. More experienced people are not available, and that has militated against the low consumption of coal.

Question. Have you made any experiments with oil burning locomotives?

Answer. No. We have however, diesel rail cars working in the Cocanada and Madras suburban areas.

Question. Have you any project for electrification of your track?

Answer. Nothing for the time being. But here is sufficient density of traffic to justify electrification of the track from Madras to Arkonam, distance of 47 miles.

Question. Apart from the coal required by your railways, what is the amount of coal travelling on your route for public consumption as well as for S.I.R., and Mysore?

Answer. For six months ending June 1946 we moved from Bezwada daily an average of 327 loaded wagons. Out of this number 32% represents coal for the public and railways.

Question. Is it your experience that the movement of coal from Waltair to your system is reasonably efficient, or are there any difficulties experienced en-route?

Answer. There is reasonable efficiency. Our bottleneck is at Bezwada which is a junction station with the Nizam's State Railway. From Bezwada in the Up direction i.e. towards Madras the position is aggravated because we have to haul traffic coming from the N. S. Railway, in addition to traffic from the Bengal Nagpur Railway via Waltair. During the war the permanent way suffered to some extent owing to the heavy train service as only such engineering works as were considered necessary were undertaken. The condition of Locomotives has also deteriorated. Further staff are not as efficient as in pre war days as a fairly large number of them are junior and lack that experience necessary for efficient operation. This section of the M. & S. M. is working to its full capacity and has done so far some time past.

Question. Have you any project for improving the clearing facilities at Bezwada?

Answer. We propose to effect improvements in the existing Bezwada Yard.

Question. I think you know by experience the centres where coal is consumed largely. Do you consider that the distribution points are well placed.

Answer. I think they are very well placed. I do not think there is any room for improvement.

Question. Do you think that the consumers in this area show any preference to coal from Bengal/Bihar, C.P. or the Deccan coalfields?

Answer. Naturally they like to get coal at the cheapest freight. I think in that sense they prefer Singareni coal, which is nearer to the consumers.

Question. Since the good quality coal which you get from Bengal is costly and uneconomic, why do you continue to ask for that coal?

Answer. We need some good quality coal for our passenger services. Therefore, although Singareni coal is cheaper, we want the better Bengal coal though more costly.

Question. As you are satisfied with the type of coal you are receiving, may I take it that it is not very necessary for you to receive Bengal coal if you can get suitable good burning coal from Talcher for all your services?

Answer. Talcher coal could do for all our services. There is also a freight advantage in that its source is nearer.

Statement showing the quantities of coal issued to different services during the 7 years 1938-39 to 1944-45.

1938-39											
1939-40											
	M.&S.M. Talcher	Villiers Talcher	Bengal coal mixed	Singareni	M.&S.M. Talcher Screened Slack	Kotha-gudum	Pench coal	Total	M.S.M. Talcher	Villiers Talcher	Bengal mixed
	Tons	Tons	tons	tons	tons	tons	tons		tons	tons	tons
1. Mail and Passenger	81,859	47,333	1	68,500	..	..	..	197,693	100,196	41,500	..
2. Mixed	2,119	4,046	410	26,910	..	..	..	33,485	5,016	1,860	..
3. Goods	87,039	32,971	1,839	119,344	..	..	..	241,193	43,441	35,460	..
4. Traffic yard shunting	6,368	4,918	1,175	33,760	189	..	..	46,410	4,603	4,407	..
5. Miscellaneous	2,952	1,783	68	5,274	2	..	..	10,079	2,877	1,525	..
TOTAL RUNNING ENGINES	180,337	91,051	3,493	253,788	191	..	..	528,860	156,133	84,752	..
Loco Yard Shunting	1,376	814	7	2,249	..	..	..	4,446	653	505	..
Pumping Engines	2,114	1,346	..	5,103	443	..	..	9,006	1,013	1,119	..
Shed use	1,274	92	20	901	105	..	..	2,392	100	63	..
Supplies to other departments	1,541	2,033	17	9,245	..	..	..	12,836	1,243	1,970	..
TOTAL OTHER PURPOSES	6,305	4,285	44	17,498	548	..	..	28,680	3,009	3,657	..
GRAND TOTAL	186,642	95,336	3,537	271,286	739	..	..	557,540	159,142	88,409	..
1940-1941											
1941-1942											
1. Mail and Passenger	128,023	46,024	..	20,857	..	4,574	..	199,488	116,605	51,824	22,403
2. Mixed	8,545	1,957	..	20,566	..	6,635	..	37,703	12,774	4,308	394
3. Goods	42,571	30,634	..	151,614	..	2,935	..	227,754	67,023	50,903	1,913
4. Traffic and Yard shunting	6,240	3,905	..	32,599	..	2,125	..	44,869	10,084	6,356	55
5. Miscellaneous	5,566	2,340	..	5,922	..	419	..	14,247	7,682	2,492	249
TOTAL RUNNING ENGINES	190,945	84,870	..	231,558	..	16,688	..	524,061	214,168	115,833	25,014
Loco Yard shunting	1,220	473	..	3,489	..	232	..	5,414	1,546	832	9
Pumping Engines	1,255	1,109	..	6,386	..	759	..	9,509	1,974	1,673	..
Shed use	164	130	..	1,628	..	45	..	1,967	184	191	14
Supplies to other Department	1,426	1,869	..	8,040	..	40	..	11,375	1,966	2,741	53
TOTAL OTHER PURPOSES	4,065	3,581	..	19,543	..	1,076	..	28,265	5,670	5,427	76
GRAND TOTAL	195,010	88,451	..	251,101	..	17,764	..	552,326	219,838	121,310	25,090
1942-1943											
1. Mail and Passenger	206,634	10,020	..	5,782	..	10,020	..	206,634	..	..	..
2. Mixed	38,869	10,114	..	11,279	..	10,114	..	38,869	..	..	..
3. Goods	278,931	125,794	..	33,298	..	125,794	..	278,931	..	..	..
4. Traffic and Yard shunting	52,228	26,553	..	9,200	..	26,553	..	52,228	..	..	..
5. Miscellaneous	16,329	3,375	..	1,531	..	3,375	..	16,329	..	..	..
TOTAL RUNNING ENGINES	591,991	175,836	..	61,090	..	175,836	..	591,991	..	..	..
Loco Yard shunting	56,43	2,231	..	1,025	..	2,231	..	56,43	..	..	..
Pumping Engines	11,237	5,042	..	2,548	..	5,042	..	11,237	..	..	..
Shed use	1,991	1,212	..	400	..	1,212	..	1,991	..	..	..
Supplies to other Department	16,566	10,872	..	934	..	10,872	..	16,566	..	..	..
TOTAL OTHER PURPOSES	35,437	19,387	..	4,907	..	19,387	..	35,437	..	..	..
GRAND TOTAL	627,428	195,159	..	65,997	..	195,159	..	627,428	..	..	..

1942-43

1943-44

	M. S. M. Talcher	Villiers Talcher	Bengal coal mixed	Singareni	Pench coal	Kotha-gudum	Total	M. S. M. Talcher	Villiers Talcher	Bengal mixed	Singareni	Kotha-gudum	Chirimiri	Total
	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons
1. Mail and Passenger	89,768	46,790	35,919	..	3,643	24,938	201,058	90,461	43,255	47,780	..	29,379	1,394	2,12,269
2. Mixed	7,746	4,491	150	..	342	16,735	29,464	4,904	3,716	2,959	..	21,200	..	32,779
3. Goods	56,312	39,308	741	..	9,606	194,806	300,773	50,860	33,973	54,000	..	158,188	2,602	299,631
4. Traffic yard shunting	7,105	4,089	81	..	1,490	39,216	51,981	5,094	4,443	15,008	..	30,159	3	55,673
5. Miscellaneous	6,941	4,967	432	10*	718	6,744	19,792	5,042	3,372	4,839	20*	8,647	11	21,891
TOTAL RUNNING ENGINES	167,872	99,645	37,323	10*	15,799	282,439	603,068	156,361	88,759	125,560	20*	247,573	4,010	62,243
Loco Yard shunting	698	804	100	..	42	3,922	5,566	2,020	793	908	..	3,455	..	7,176
Pumping-engines	1,308	1,442	..	3	305	9,275	12,333	1,060	1,627	2,348	99	7,810	37	12,970
Shed use	95	116	8	1	4	1,687	1,911	53	71	646	31	1,173	..	1,974
Supplies to other Departments	2,784	2,837	132	9	39	12,500	18,301	1,199	2,156	2,573	43	13,050	..	19,021
TOTAL OTHER PURPOSES	4,885	5,199	240	13	390	27,384	38,111	4,332	4,647	6,475	162	25,488	37	41,141
GRAND TOTAL	172,757	104,844	37,563	3	16,189	309,823	641,179	160,693	93,406	132,035	142	273,061	4,047	663,384

Refers to quantity of coal unloaded from engine tenders at PWT for which credit was afforded to running engines. This quantity was used in work shops debited to work orders.

Services	M.S.M. Talcher	Villiers Talcher	Bengal coal mixed	Kotha- gudium	Pench coal	Screened slack	Deteriorated slack	Tandur coal	Total
	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	
1. Mail and passenger	77,185	31,057	70,555	27,469	1,131	..	..	128	207,525
2. Mixed	1,917	2,347	4,825	15,501	..	..	..	..	24,746
3. Goods	43,727	37,870	101,261	100,868	156	..	..	474	294,132
4. Traffic Yard Shunting	3,729	5,169	25,019	18,912	9,932	2,033	184	84	55,605
5. Miscellaneous	3,299	2,620	12,877	6,621	137	2	..	48	25,604
Total Running Engines	129,857	79,063	214,537	169,371	11,831	2,035	184	734	607,612
Loco Yard Shunting	1,790	413	1,322	2,976	78	331	..	26	6,946
Pumping engines	576	1,744	3,821	4,951	301	1,849	51	1	13,294
Shed use	88	20	266	199	9	1,020	138	..	1,740
Supplies to other Departments	672	839	7,863	3,843	2	60	383	..	13,682
.. TOTAL OTHER PURPOSES	3,126	3,016	13,282	11,969	390	3,260	572	27	35,642
GRAND TOTAL	132,983	82,079	227,819	181,340	12,221	5,295	756	761	643,254

27. ORAL EVIDENCE OF MESSRS. W. M. CRAIG, W. L. KERMAK, J. I. PEARSE AND O.S. MURTHY, REPRESENTING THE G. I. P. RAILWAY.

Question. In connection with the statement (attached submitted by you showing coal consumption on the G. I. P. Railway, could you give us an idea of the coal by grades received from Bengal in the last 2/3 years ?

Answer. I submit another statement (attached) showing the total amount of coal supplied to this railway during the year 1945-46, including Bengal coal, together with details of collieries from which supplies were received. Against our wishes grade III coal from Bengal fields was supplied and we found it most inferior in quality.

Question. In 1939-40 you took only 26,000 tons of Bengal coal. May I assume that you can do without anounce of Bengal coal.

Answer. You must remember that the G.I.P. has some very heavy gradients. Our minimum requirement is 18,000 tons a month of Selected A grade for mails and expresses and an equal amount of Selected B grade for passenger service. We do not like to have grade II for passenger service as it has caused us great difficulty. We can use Chirmiri coal, but it produces sparks which cause damage along the road-side and are also potential source of danger from fire to coaching stock.

Question. Need the 36,000 tons of Selected A and B Bengal coal necessarily be coking coals.

Answer. We would welcome coking coals, but alternatively are quite prepared to accept Selected grade non-coking varieties such as Dishergarh, Poniat, Jomuria with a high calorific value and low ash content. We have no objection to the use of C.P. coal for our goods services, except that it often includes a high proportion of dust.

Question. Could you utilise inferior coal in locomotive boilers by adapting your fire boxes etc.?

Answer. We are anticipating passenger engine replacements in the near future. I hope that the Railway Board will take this factor into consideration in designing locomotive boilers fitted with rocking grates.

Question. In the last ten years your consumption of coal has gone up by 50 per cent. Does this increase in consumption correspond to an increase in traffic.

Answer. War is an unusual period, and traffic definitely increases during the war. Our high consumption of coal was due partly to the increased use of lower grade coals and the amount of shale and dust mixed with the coal.

Question. Could you let us know what measure of fuel economy the G.I.P. Railway has adopted

Answer. We have been at this for nearly 18 months during the war, and we claim we have saved a good deal of coal. We set a ration for every trip, i.e. the driver of the train must work within that ration. At the end of the month we total up the consumption and compare it with the ration, and the driver is called to account if he exceeds the ration allotted to him. Our Fuel Economy Department is not a permanent one, but we have asked for it to be made permanent, and it is most likely that the Railway Board will agree. I produce a note regarding our fuel economy measures.

Question. You state that you were supplied about 140 different classes of coal during one year. Do you mean that supplies were made from 140 different mines ?

Answer. Yes, from different mines. There is no consistency at all. We are getting coal even now which we have probably never used before. Such changes are neither conducive to economical working not to research. We have also had different kinds of coal being supplied to us from the same mine.

Question. Have you any new project for electrifying your track ?

Answer. We have an Officer on special duty who is preparing schemes for electrifying the Bhusaval-Igatpuri sections, and also an extension of the line from Bombay-Poona up to Dhond. The source of power would be thermal, and it is proposed to extend the Kalyan power station and possibly to

ut up another thermal station. By this switch ver to electricity there will definitely be a iving in the consumption of high grade coal, s thermal stations can consume increasing quanti- es of slack coal. These electrification projects re justified on the basis of density of traffic and Iso on economic grounds.

Question. You have a fairly extensive area cov- ed by the G.I.P. Do you normally have coal umps at various centres ?

Answer. We keep stocks but have no large umps. We have never found any necessity for em. If there is any trouble on the line in getting al from Bengal, we can get coal from the C.P. /hen the supplies from Bengal runs short, we ave to divert our wagons from other sources to ring us coal for stocks. The reserve stocks on the .I.P. are generally for 30 days. I would not sist on carrying 30 or 35 days' stock except for engal coal, the transit period of which is about to 11 days. But so far as C.P. coal is concerned, am quite prepared to work with lower stocks of al, say 20 days'. It is better not to hoard coal at to work with what you think is just necessary.

Question. Does electrification of your track involve complete replacement of steam locomotives ?

Answer. We shall then keep a very small num- er of steam locomotives, say, not more than 8, on ie section between Bhusaval-Igatpuri.

Question. What is your opinion regarding the efficiency of diesel engines on your system ?

Answer. We have got 10 of them working in ie Bombay area using diesel fuel. They are ather light for our purpose but have been quite efficient in operation. There is, however, a lot of echanical trouble. We have an idea of electrify- ing our sidings in Bombay, so that eventually we hall have no steam locomotives in the Bombay rea.

Question. Do you find, in the actual loading of oal from the coalfields, fluctuations in loading, i.e. oncentration of loading on certain days in the eek and no loading during the rest of the week ?

Answer. Before the war there was free loading n Sundays in Pench and Chanda Valley Coalfields do not think there has been seven days' loading niformly during the period of the war. The ormal supply is 90 wagons a day with only 8 or wagons loaded on Sundays.

Question. In view of the seasonal fluctuation with egard to the movement of commodities, do you hink your railway can meet the peak demand for wagons from the coalfields within your area ?

Answer. The shortage is not felt in respect of upplies for coal loading for the Railway especially s coal for Railway comes under class I (a) of the riority list.

Question. Are your terminal and depot facili- es and clearing capacity adequate to meet re- onably increased demands ?

Answer. No. We are considering what addition- l facilities are to be provided to cope with the ncrease traffic from the Central India Coalfields.

Facilities at Katni require to be extended. There are bottlenecks at Itarsi, Bhopal and Ujjain (upto a point). We are considering doubling the line between Itarsi and Bhopal. There is a proposal for putting up a new line between Narkher and Amraoti. It will provide an alternative line from the Pench Valley collieries to the south. We are utilising to the maximum our terminal yard facili- ties.

Question. We estimate a deficit of 6 million tons between the supply and demand of coal in the next two years, so that it may be that we may recommend certain positive action in respect of increasing output, but it is no use making that recommendation if the railway facilities are not there to move the coal. Has your railway got facilities to cope with increased movement of coal ?

Answer. It will depend upon the volume of traffic other than coal. It is also dependent upon the traffic position at certain points. It is difficult at Bina. The yards at some places cannot un- fortunately handle the excess coal traffic. They are already fully booked. The G.I.P. system is more or less working on 100 per cent load.

Question. Have you got back to the state of affairs which prevailed before the war in the matter of operation ?

Answer. We are still far away from that stage. Our traffic has been heavier in the year 1945-46 than in the war years. Our mileage was higher than ever in February—March 1946. Our passenger train services are however at present somewhat restricted.

Question. The fact that you have handled more traffic in 1945-46 than in any previous year can be taken as a hall mark of efficiency. The Railway Board say that it will take two years or more to get back to normal conditions. I wonder what the position is in respect of the G.I.P.

Answer. From the Commercial Dept's point of view there is no possibility of going back to pre-war level in two years in G.I.P. Railway.

Question. Are you suffering from lack of trac- tive power or other factors ?

Answer. We are not short of power at present. We are also not short of wagons. But our track is not in good condition. Certain section of track need rehabilitation. Our first step is to get back our coaching stock from the Army. Once we get that back in good condition, we should be able to resume our pre-war long distance service in about six months.

Question. Have you any idea of the tonnage you carry for stations on the meter-gauge system west of Ujjain ?

Answer. It is not very substantial at present because as a war-time measure, we have transfer- red the traffic from-Khandwa to the Ujjain route. The present figures of coal movement are no cri- terion for normal traffic

Question. I suppose the linking up of Khandwa section with the Hingoli section will take it right up to the Pench Valley, and transshipments can be avoided. ?

Answer. That is one of the reasons behind the linking up.

Question. The movement of coal originating for the Pench Valley and Wardha Valley coalfields on your system is mostly westwards. Do you consider there is any transport bottleneck on your system which delays this movement.

Answer. There is the Itarsi-Bhopal yard plus the difficulty of the Itarsi-Bhopal line due to single line capacity. We are considering doubling this track. As an alternative, doubling of lines between Bina and Khandwa is a practical proposition. Coming eastwards, we get a lot of difficulties at Cheeki. If we get through this bottleneck, we have little difficulty in handling coal from Bengal.

Question. What is the condition of the Jhansi-Manikpur section ? Is it too crowded ?

Answer. No, it is not, we take some coal coming from Chirimiri over the Jhansi-Manikpur section. There is some spare capacity in that section.

Question. Do you think it is better to put a new line to Manikpur from Daltonganj ?

Answer. If the U. P. Government go through their hydro-electric Sone-Valley scheme, a new line will have to be laid there. To take coal from Central India to the north of Jhansi, say, to Delhi, it will be better to put a new line to Manikpur and from Manikpur to Jhansi.

Question. Have you received many complaints from individual coal mine owners in regard to difficulties in getting sidings ?

Answer. No. The criteria in granting sidings are the status of the applicants, whether they are likely to meet their obligations and whether their expectation of traffic is reasonable etc. In our opinion, a colliery, in order to qualify for a siding should be in a position to load, say, 10 wagons a day, or about 5 to 6 thousand tons a month.

Question. Are there many weighbridges in the collieries in your area ?

Answer. There used to be one at Lalpur. I am not sure whether it is still functioning.

Question. At present the distribution of coal is controlled by the Coal Commissioner. If you were to revert to the pre-war practice of freeloading, would that make much difference in the movement of coal ?

Answer. If the present system is abolished, we prefer free loading.

Question. Have there been many complaints of pilferage of coal on your railway ?

Answer. We have not had much pilferage.

Question. Are you in favour regulating the use of coal according to the needs of consumers ?

Answer. I definitely say that there should be some authority who should regulate the use of coal according to the requirements of consumers. Take for instance, Chanda Valley coal, which is very cheap due to poor quality. We have been more or less forced to accept this coal, but what we feel is that this coal, instead of being supplied to the railways, should be given to users who can best use it for their purpose.

Statement showing coal consumption on all G. I. P. Railway services from different coalfields

Year	Bengal	Central India	Pench Valley	Chanda Valley	Deccan	Total	
	(Tons)	(Tons)	(Tons)	(Tons)	(Tons)	(Tons)	
1935-36	..	..	..	..	..	818,405	} Details of consumption from coalfields not available.
1936-37	..	..	..	..	..	849,841	
1937-38	..	..	..	..	..	897,267	
1938-39	104,792	268,424	459,925	47,730	46,491	927,362	
1939-40	25,936	216,630	651,061	66,610	49,121	1,009,358	
1940-41	165,776	167,685	636,647	57,771	50,260	1,078,039	
1941-42	272,966	187,805	623,235	62,463	68,174	1,214,663	
1942-43	224,888	306,054	617,881	64,662	36,099	1,249,584	
1943-44	512,734	100,095	579,137	65,449	29,591	1,287,006	
1944-45	577,586	31,567	587,277	45,107	6,917	1,248,454	

(10 years)

Coals from what coalfields		Quantity allotted during 1945-46	Quantity received during 1945-46	Difference between col. 2 & 3
1		2	3	4
Selected 'A'	} Bengal Coals	1,65,050	1,32,721	-32,329
Selected 'B'		1,14,600	1,02,123	-12,477
Grade I		1,51,380	1,71,894	+20,514
Grade II		1,71,100	1,07,377	-63,723
Grade III A		24,400	1,70,87	-7,313
Grade III B		13,600	71,62	-6,448
Central India		1,25,000	1,48,253	+23,253
Pench Valley		5,95,550	6,26,396	+30,846
Chanda Valley		1,18,710	98,702	-20,008
		1,47,93,90	1,41,17,05	-67,685

SELECTED 'A' GRADE COAL

Name of Coal	Quantity allotted during 1945-46	Quantity received during 1945-46	Difference between cols. 2 & 3
1	2	3	4
Bararee	56010	50,282	-5,728
McNeills Poniate	31900	28,970	-2,930
Khas Chinchuria	8800	2,457	-6,343
Lodna (T. & M.)	28240	6,835	-21,405
Bararee Joyrampur	300	..	-300
Jamuria	3200	..	-3200
Poniat (Andrew Yule)	2800	3,061	+261
Giridih	33800	40,754	+6,954
S. E. Baraboni . . . . .	..	170	+170
Victoria . . . . .	..	192	+192
	1,65,050	1,32,721	-32,329

SELECTED 'B' GRADE COAL

Name of Coal	Quantity allotted during 1945-46	Quantity received during 1945-46	Difference between cols. 2 & 3
1	2	3	4
Burragarh	6600	..	-6,600
East Bhalgora	3200	3,925	+725
Gaslitan	28500	20,913	-7,587
Madhuban Lodna (Valliram)	15000	10,807	-4,193
Angarpatra	2000	1,058	-942
Lodna New Standard	14500	11,092	-3,408
Lodna Bagdighi	16400	25,352	+8,952
East Bhugatdih	7700	5,023	-2,677
Jogta	6000	..	-6,000
New Teturia	5200	3,277	-1,923
Khas Joyrampur	2000	2,549	+549
Sirka . . . . .	..	1,348	+1,348
West Gopalichuck	2,000	..	-2,000
Religora	5,000	..	-5,000
Pure Deshergarh . . . . .	..	3,685	+3,685
Jharia Khas	500	475	-25
Loyabad . . . . .	..	1,257	+1,257
Godhur . . . . .	..	524	+524
Kenda . . . . .	..	3,913	+3,913
Ballihari . . . . .	..	41	+41
Bararee . . . . .	..	5,701	+5,701
Central Bhowrah . . . . .	..	84	+84
Hatnal . . . . .	..	60	+60
B. Bararee . . . . .	..	1,039	+1,039
	1,14,600	1,02,123	-12,477

GRADE I

Name of Coal	Quantity allotted during 1945-46	Quantity received during 1945-46	Difference between cols. 2 & 3
1	2	3	4
Kargali	1,05,580	1,08,443	+2,863
Bokaro (R. O. M.)	34,000	..	-34,000
Bokaro (State Rlys.)	5,600	54,132	+48,532
Gaslitan	500	409	-91
Phularitand/Ashakuti	4,000	..	-4,000
Central Kirkend	1,700	1,659	-41
Selected Phularitand . . . . .	..	2,998	+2,998
Mudhuban Lodna . . . . .	..	4,253	+4,253
	1,51,380	1,71,894	+20,514

GRADE II

Name of Coal	Quantity allotted during 1945-46	Quantity received during 1945-46	Difference between cols. 2 & 3
1	2	3	4
Kargali	69,800	29,598	-40,202
Angarpatra	9,000	..	-9,000
Jogta (Sethias)	6,500	10,624	+4,124
Khujama	3,000	1,837	-1,163
Angarpatra Nationals	800	4,575	+3,775
Mudidih	10,700	1,049	-9,651
East Basuria	33,200	26,834	-6,366
Shri Mahabir Angarpatra	4,250	..	-4,250
Khas Kirkend	1,500	1,678	+178
Ekra Khas	4,000	3,433	-567
Dobari	1,000	..	-1,000
New East Jharla	2,000	..	-2,000
Tisra Santh	1,000	1,442	+442
Bright Jharla	5,500	4,808	-692
Alkusa Naidi	800	1,821	+1,021
Khas Kusunda	3,000	2,988	-12
West Ena	4,550	4,580	+30
Sendra Bansjora	10,500	9,074	-1,426
Kujana . . . . .	..	1,106	+1,106
Ashakuti . . . . .	..	675	+675
Joyramdih . . . . .	..	552	+552
Central Joyrampur . . . . .	..	430	+430
Dhori . . . . .	..	273	+273
	1,71,100	1,07,377	-63,723

GRADE IIIA

Name of Coal	Quantity allotted during 1945-46	Quantity received during 1945-46	Difference between cols. 2 & 3
1	2	3	4
Kalithan Jinagora	1,000	..	-1,000
Indian Jharla	2,000	1,436	-564
Jealgora Govindpur	3,000	2,827	-173
Pitchri	12,600	10,388	-2,212
Khas Salanpur	700	..	-700
East Salanpur	1,500	..	-1,500
Takweka Khas	400	..	-400
South Golukdih	3,200	..	-3,200
Tisra . . . . .	..	2,436	+2,436
	24,400	17,087	-7,313

GRADE IIIB

Name of Coal	Quantity allotted during 1945-46	Quantity received during 1945-46	Difference between cols. 2 & 3
1	2	3	4
Tisra (D. Deoji)	1,500	..	-1,500
Chandrabad	1,200	1,322	+122
Dobari (R. N. Bagchi)	900	1,422	+522
Dhansar	1,000	..	-1,000
East Basuria	4,000	..	-4,000
Gararia	2,500	1,523	-977
East Kendwadia	1,000	2,192	+1,192
Kalithan Angarpatra	1,000	..	-1,000
West Angarpatra	500	693	+193
	13,600	7,152	-6,448

PENCH VALLEY COALS

Name of Coal	Quantity allotted during 1945-46	Quantity received during 1945-46	Difference between Cols. 2 & 3.
1	2	3	4
Pench Group	4,07,260	3,41,618	-65,642 Chandametha
Dannua/Kalichhapper	31,600	27,867	-3,733
Hirdagarh/Rakhikol	15,060	21,188	+6,128
Junnerdeo	9,340	7,384	-1,956
Jamai Datla	5,760	8,198	+2,438
Newton Chickli	71,230	67,939	-3,291
Rawanwarakhas	4,600	2,830	-1,770
Sial Ghogri	12,900	11,024	-1,876
South Panara	17,640	19,879	+2,239
Rawanwara (Shaw Wallace)	19,160	22,287	+3,127
Parasia	1,000	2,330	+1,330
Chandametha . . . . .	..	93,091	+93,091 Under pench group
Ghogri Barkui . . . . .	..	352	+352
Ambara Palachouri . . . . .	..	409	+409
	5,95,550	6,26,396	+30,846

CHANDA VALLEY FIELDS

Name of Coal	Quantity allotted during 1945-46	Quantity received during 1945-46	Difference between Cols. 2 & 3
1	2	3	4
Ballarpur/Sasti	49,920	40,323	-9,597
Ghugus/Rajur	40,780	33,955	-6,825
Mahakali	11,360	11,820	+460
Majri	16,650	12,604	-4,046
	1,18,710	98,702	-20,008

CENTRAL INDIA COALS

Name of Coal	Quantity allotted during 1945-46	Quantity received during 1945-46	Difference between Cols. 2 & 3
1	2	3	4
Chirimiri	45,600	40,577	-5,023
Ponri Hill	44,000	67,118	+23,118
Burhar	35,400	38,417	+3,017
Kuresia . . . . .	..	2,141	+2,141
	1,25,000	1,48,253	+23,253

28. Oral evidence of Messrs. P. G. C. Peyton and D. Narayanswami Chetti representing the South Indian Railway.

Question.— Could you tell us what your coal requirements were before the war and what they now are if possible divided into different grades and classes ?

Answer.— A statement is produced giving the quantities of various kinds of coal received by this Railway during the years 1935-36 to 1945-46, classified according to grades and classes. The difference between the coal supplied and the coal consumed represents the coal taken from stock. There has been no great variation in the consumption of coal pre-war and now. We are, however, likely to have higher consumption during

1945-46 if we get rolling stock for which we have been waiting.

Question.— Is it possible to give details of the type of coal you received from Bengal ?

Answer.— During 1945-46 we received coal from the following collieries in Bengal/Bihar coalfields :—

Standard, Pure Burragarh, Kargali, Balihari, Bhagaband, Saltore, Hurriladih, Kendwadih, Bhuggatdih, Bokaro, Lodna, Murulidih.

Question.— What percentage of your total consumption is utilised in other than, say, mail and fast passenger services ?

Answer.— A statement showing the consumption of coal by locomotives for different services is produced.

Question.—We find that a considerable quantity of the coal you have received is of metallurgical quality coming from the Jharia coalfield above No. 12 seam. If you are given suitable coal of equal calorific value, would that serve your purpose?

Answer.— We can use other steam coal if the ash content is below 17% and calorific value ranges between 7,300 and 7,500 units. I submit a statement showing experience gained in the use of various types of coal on S. I. Railway.

Question.—May we take it that it is not necessary or essential for your purpose that the coal should be of a coking variety?

Answer.— It need not necessarily be coking.

Question. You have stated that your experience has been, taking operational and economic factors into consideration, that except Bengal Selected grade I all the other varieties are unsuitable on this railway. Could you elaborate your statement?

Answer.— Yes. Other Bengal-Bihar coals make the freight charges uneconomic and involve using more wagons. We have tried various types of Singareni and other coals. They weather badly and as they are rather inclined to crumble away, we do not get the full value.

Question.— Has your railway made any experiment by way of adapting fire-boxes or of devising some other method in order to utilise high ash coal?

Answer.— On the standard engines we have been using C. P. coal with high ash content. All the standard engines have got rocking grates. Our engines on the metre gauge have narrow fire bars, and if any inferior coal is used, boxes have to be cleaned often, with the result that we have to stop express trains too often, and there is an increase in the consumption of coal. On our standard engines, we are using grade I and C. P. coals.

Question.— What has been your experience of the use of C. P. and C. I. coals as compared to grade I Bengal coal?

Answer.— In the case of Chirimiri, though the coal is suitable for fast passenger and mail services, the consumption is about 15 or 20% higher compared to grade I Bengal coal. The reason is that Chirimiri coal is very light, burns quicker, and does not stand heavy blast which we are unable to control effectively. Jagrakhand coal is not so good as Chirimiri coal, and it is useful only for slow passenger services. Central India coals are not much use for our passenger service.

Question.— You have given the breakdown of your requirements of coal by quality as 42% Selected A & B 42% Grade I and 16% Grade II. Are we to understand that Selected A and B grades are needed mainly for fast and mail passenger services?

Answer.— Yes, and also for important goods trains.

Question.— Are the gradients on your line greater than those on the G. I. P.?

Answer.— Ours is 1 in 200 while G. I. P. is 1 in 100. In certain portions of our line on metre gauge, the gradient is 1 in 100, and in Nilgiri mountain it is 1 in 12. Like the G. I. we have also ghat sections but the main difference is that they have broad gauge lines whereas ours are metre gauge.

Question.— The G. I. P. railway have definitely expressed the opinion that the C. P. coal which they are receiving is quite suitable for services other than fast passenger services. Could the same apply to your railway?

Answer.— The G. I. P. have more of the standard type of locomotives fitted with rocking grates whereas only 33% of our engines are fitted with this adaptation. Firemen on our railway find it difficult to clean the fire-boxes at every station and this would also result in considerable delay in traffic.

Question.— During the war years when you were supplied with coal not necessarily of your choice did you experience, apart from the extra consumption in coal, any other effects?

Answer.— We had a lot of engine failure due to coal getting jammed to such an extent that fire-boxes could not be cleaned.

Question. Is not this extra consumption compensated for by the lower price paid for the coal used?

Answer.— There is not much difference in the price. On an average the pitmouth price of Bengal coal is Rs. 13 a ton and that of C. P. coal is about Rs. 10, Rs. 11 per ton. But we pay nearly Rs. 25 per ton of coal as freight.

Question.— Would you not feel happier to have your old types of engines repaired or to have new engine replacements with rocking grates and other adaptations, to permit of the utilisation of lower grade coals?

Answer.— We have not been successful with low grade coals. For some slow trains engine adaptations would serve the purpose, but not for express trains.

Question.— Have you made any experiment with oil burning engines?

Answer.— Yes. At present 11 XB class engines and 5 XD class engines are being converted to oil; and it is our intention to follow up the programme by converting all our XB class engines but a definite policy has not yet been arrived at. It is dependent on the difference between the cost of coal and that of oil. I think the policy will be, as far as possible, to get boilers converted to oil burning.

Question.— What are the reasons for this decision?

Answer.— One of the reasons is difficulty in getting suitable coal.

Question.— Is it not dependent on the impossibility of oil, which is a still greater handicap?

Answer.— That we have not gone in to. As we are finding difficulty in getting coal, the Railway Board suggested that we must go ahead with our programme of converting boilers to oil firing.

Question.— Are there any special advantages in oil burning ?

Answer.— Definitely. When you switch over to oil burning, you can do away with all the coolie labour for filling the engines. For oil burning the boilers can be much smaller ; locomotives and engines are kept cleaner. Against that, there is the possibility of the fire boxes getting over hot.

Question.— Have you carried out any experiments with pulverized fuel ?

Answer.— No. We have not done any experiment. We tried to use small coal. It did not burn properly and lay dead in the fire boxes. So we have decided not to use it any more, as it is not suitable for the engines as they are.

Question.— Have you any projects for electrification of your railway track ?

Answer.— We have already about 18 miles of electrified track. The energy is derived from the Madras Electricity Supply Corporation. We propose investigating an extension from Tambaram to Arkonam in the first instance. That covers 37 miles, and there is also a possibility of taking the electrical service right down to Villuram for a distance of about 100 miles. The projects are only at the planning stage and have not yet been approved by the Railway Board.

Question.— What are the main factors which persuade you to consider electrifying the track or 100 miles ?

Answer.— With steam locomotives you cannot get quick acceleration. We are investigating the possibility of getting electric power cheaper than coal, and electric locomotives require a lighter track which is an advantage.

Question.— What specific measures of fuel economy have you been adopting in the past and in recent years ?

Answer.— We have a Fuel Economy Branch. We concentrate mainly on the consumption of services like passenger and mixed trains. For each trip we fix a target consumption of coal based on tests conducted by our inspectors. If it is found that the drivers are not efficient in handling coal consumption, the inspectors guide and improve their working. We have conducted various tests with different types of coal, and found from experiment that certain types of coal were suited for certain services. Another economy measure is to utilise cinders $\frac{1}{2}$ " to 1" in size in a mixture with coal for shunting engines etc. Besides we are using alternative fuels like wood.

Question.— With the present high freight for sea-borne coal, do you prefer your coal to be brought by rail ?

Answer.— I submit herewith a note on the transport of coal to the South Indian Railway. Apart from the high sea-freight we find that the coal carried by sea contains about 30 to 40% dust. This is apparently due to loading and unloading at various stages from colliery to wagons, at dockyards, at steamers, at barges and so on. We also find shortages of coal at delivery points. If the coal comes by sea on existing freight rates, it is not economical, and we would prefer to get coal by rail.

Question.— What is the price of coal that you get from Jharia

Answer.— The present prices are about Rs. 13 a ton, and including freight, it comes to about Rs. 40.

Question.— Would it be cheaper if you convert to oil ?

Answer.— At present the price of oil is Rs. 6 a ton. There is difficulty with oil, in that the oil firms will not enter into long contracts.

Quantities of various kinds of coal received during the years 1935-36 to 1945-46.

Particulars of coal	1935-36		1936-37		1937-38		1938-39		1939-40		1940-41	
	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%
<i>Graded Coal.</i> —												
Bengal Coal	2,69,127	100	2,90,709	100	2,21,637	68.3	2,73,777	81.8	3,31,949	95.3	2,74,036	94.7
<i>Non-Graded Coal.</i> —												
Welsh C.I. . . . .	..	..	..	..	11,339	3.5	6,160	1.8	3,298	.9	2,201	.8
Welsh C.I. . . . .	..	..	..	..	51,050	15.7	28,894	8.6	13,124	3.8	12,888	4.5
<i>Sea-Borne mixed.</i>												
Mixed Coal . . . . .	..	..	..	..	37,644	11.6	26,257	7.8	..	..	..	..
Provisional . . . . .	..	..	..	..	3,000	.9	..	..	..	..	..	..
Public Coal . . . . .	..	..	..	..	..	..	..	..	..	..	..	..
TOTAL COAL SUPPLIED	2,69,127		2,90,709		3,24,670		3,35,088		3,48,371		2,89,125	
TOTAL COAL CONSUMED (Excluding wood)	..		..		2,96,642		3,06,516		2,96,979		2,99,313	

Quantities of various kinds of coal received during the years 1935-36 to 1945-46.—*contd.*

Particulars of coal	1941-42		1942-43		1943-44		1944-45		1945-46	
	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%
<i>Graded Coal—</i>										
Bengal Coal	1,99,162	82.6	1,01,444	37.5	76,516	29.8	4,451	1.6	40,962	14.9
<i>Non-Graded Coal—</i>										
Talcher C. I.	..	..	1,46,434	54.1	..	..	..	..	..	..
Deccan Coal	41,855	17.4	22,155	8.2	1,07,894	42.0	96,695	33.7	28,687	10.5
<i>Sea-Borne Mixed—</i>										
Mixed Coal	..	..	..	..	69,042	26.8	1,86,005	64.7	1,97,309	71.9
Provisional Coal	..	..	423	.2	3,560	1.4	..	..	5,263	1.9
Public Coal	20	..	..	..	..	..	..	..	2,131	.9
TOTAL COAL SUPPLIED	2,41,037		2,70,456		2,57,012		2,87,151		2,74,352	
TOTAL COAL CONSUMED (excluding wood)	3,12,578		2,70,080		2,64,629		2,76,347		..	

Statement showing total tons of coal consumed by Locomotives for different services.

Year	Broad Gauge					Metro Gauge					Narrow Gauge				
	Pass & total mixed	Goods	Shg. including Siding	Locomotives on Misc. services	Departmental	Pass. & total mixed	Goods	Shg. including Siding	Locomotives on Misc. Services	Departmental	Pass. & Total mixed	Goods	Shg. including Siding	Locomotives on misc. services	Departmental
	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons
1935-36	64,055	28,338	4,030	..	4,064	1,18,213	31,476	6,229	..	7,500	2,114	..	..	..	13
1936-37	68,022	27,877	3,626	..	3,444	1,19,842	34,991	6,383	..	6,528	3,664	..	..	..	12
1937-38	76,309	30,687	4,099	..	3,299	1,24,041	40,351	6,631	..	6,338	3,925	19	..	..	23
1938-39	78,232	31,617	4,303	275	2,830	1,30,070	41,712	6,871	376	6,391	3,045	..	..	..	49
1939-40	69,207	33,799	4,272	253	4,008	1,22,389	46,465	7,358	383	6,412	2,628	17	..	..	31
1940-41	70,080	37,034	3,333	261	4,227	1,18,923	49,494	7,483	376	6,498	2,289	13	..	..	3
1941-42	70,371	46,564	4,386	295	4,298	1,14,847	55,929	8,470	465	6,250	945	1	..	..	..
1942-43	52,564	57,141	6,421	326	5,303	76,713	63,535	9,014	549	5,677	..	..	..	..	..
1943-44	56,832	57,390	6,604	347	3,554	67,337	61,567	9,039	541	6,204	..	..	..	..	..
1944-45	54,729	56,791	6,098	336	3,439	67,418	61,174	8,127	875	5,711	..	..	..	..	..

*(Enclosure to Oral Evidence)***EXPERIENCE GAINED IN THE USE OF VARIOUS TYPES OF COAL ON S. I. Ry.**

Of all Railways in India, this Railway is situated farthest from the Collieries. To avoid payment of high freight charges for coal, the policy of this Railway has been to obtain best steam coal of high calorific value (ranging from 7300 to 7650 calories). This coal does not cake in the fire-box and has a high volatile content. The percentage of ash does not exceed 17.

To give an idea of what freight charges this Railway pays, it has to be mentioned that if the cost of coal at pit-head is about Rs. 13 per ton, the freight charges from Bengal and Bihar coal fields to the depots on this Railway will be about Rs. 20 per ton, and including transshipment and unloading charges, it may come up to about Rs. 25, i.e., the freight charges approximately amount to twice the cost of coal. If the coal is obtained by the sea route, the freight charges would come to Rs. 30 to 35 per ton, i.e., about 2½ times the cost of coal. It is therefore evident,

that it is not economical for this Railway to obtain low grade coal with high percentage of ash content.

Up to the end of 1936-37, this Railway used only best grade Bengal coal. In subsequent years, we have used other grades of Bengal coal, i.e., Grade I and Grade II and to some extent non-graded coals such as, Central India, C. P. Talcher and Singareni coals. The varieties of Central India coal used are :—

Jhagrakhand and South Jhagrakhand,
Kurasia,
Chirimiri &
Burhar.

The varieties of Central Provinces (Pench and Chanda) coal used are :—

Ballarpur (Pench and Chanda)
Ghugus and Rajur,
Rakhikol,
Datla,
Junerdoo No. 2,
Majri,
Umaria &
Ekelehra.

Our experience has been, taking operational and economic factors into consideration, that, except Bengal coal Selected and Grade I, all other varieties are unsuitable for use on this Railway.

Another factor to be considered is that this Railway is heavily graded, the ruling gradient being 1 in 200 on all sections except the following, where it is :—

1 in 100 on	TPJ—MDU	(Trichinopoly—Madura)
	TEN—SCT	(Tinnevely—Shencottah)
	TEN—TCN	(Tinnevely—Tiruchendur)
	QLN—TVC	(Quilon Trivandrum Central)
	VM—KPD	(Villupuram—Katpadi)
	VRI—COT	(Vriddhachalam—Cuddalore O. T.)
	DG—POY	(Dindigul—Pollachi)
	POY—PGT	(Pollachi—Palghat)
1 in 70 on	PTJ—POY	(Podanur—Pollachi)

*(Shencottah) 1 in 60 on *SCT Ghat section on the Metre Gauge. On the Broad Gauge, it is generally 1 in 100 in all sections except

(Kalipatti Road	Lakur Ghat 1 in 70
(Walayar & Salem—KLPT	1 in 95
Mettur Dam)	WRA & SA-MTDM)
	1 in 66

Coimbatore-Mettupalaiyam) CBE-MTP.

(Shoranur-Cochin Harbour Terminus) SRR-CHTS 1 in 80

On the Nilgiri Mountain Railway, the gradient is 1 in 12. Due to these heavy gradients, high grade steam coals only can give satisfactory performance.

Though standard types of locos built since 1926 have been provided with larger grates and are suitable for burning coal of higher ash content, provided that the ash is not the kind that readily forms clinker, this Railway has a small number of such locomotives when compared to the total number on line. On the M. G., we have 46 standard engines as against 341 on line i.e., 13.5%. On the B. G., we have 27 standard locomotives out of 160 on line i.e., 17%. The grate area of the standard locomotives on the M. G., ranges from 23 to 26 sq. ft., whereas the earlier types have got a grate area ranging from 7 to 16 sq. ft. and have narrow fire-boxes. On the B. G., the grate area of the standard locomotives is 45 sq. ft., and that of the earlier types ranges from 22 to 27 sq. ft.

Apart from this, many of the earlier type locomotives have fixed fire grates, whereas the standard % locomotives are fitted with rocking grates. On the M. G., we have 65% of the engines fitted with rocking grates and on the B. G., it is about

33%. Hence it will be seen from these figures, that on many of the engines on this Railway, we cannot use low grade coals of higher ash content.

Of the various types of coal in use on this Railway, we have found that Bengal Selected A and B grade coals are most suitable for the locos on this Railway and would give best results. The names of such Selected varieties are :—

Bararee,
Bhagaband,
Nonodijitpur,
West Gopalchuck,
Loyabad &
Dishetgarh.

Bengal Grade I coal can be used on the Passenger service, but this requires frequent stops for fire cleaning. Such stops reduce the average speed and increase the consumption. When compared to Selected coal, the consumption on this service would increase by about 8 to 10% if Grade I coal is used. On the Goods Service, Selected coal has given the best results, but if Grade I coal is used, the consumption would increase by about 15% when compared to that of Selected.

Of the C. I. coals, only Chirimiri coal is found suitable for Express and light Passenger services but the consumption in this case would be very high i.e., about 15 to 20% when compared to that of Selected coals. C. P. coals and Bengal Second Grade coals have been found to be definitely unsuitable for any service on this Railway. However, some of the low grade coals can be used on Steam Pumps, Ballast trains, Shunting engines and other departmental purposes. Taking all the above factors into consideration, the quantities of various grades of coal that could be used for all services without affecting the operating efficiency are as follows :—

Selected Grade A & B 42%, First Grade 42% Second Grade 16%. We agree with the suggestion of the Railway Board indicating the zones to be served by each field; this Railway being shown under Bengal and Bihar fields as per Map sent by them. We reiterate the general policy of the Railway Board to continue to distribute coals with lesser percentage of ash over the longer distances and to use coals with a higher ash content at places nearer the original source of supply.

Finally, 6,000 tons of Rubble coal and 2,000 tons of Coke are required for Golden Rock Work shops per year.

29. ORAL EVIDENCE OF MESSRS. W. T. BISCOE CHIEF OPERATING SUPERINTENDENT, G. P. BHALLA SENIOR ASSISTANT TECHNICAL OFFICER, AND G. S. KHOSLA, RATES OFFICER, REPRESENTING THE NORTH WESTERN RAILWAY.

Question : Could you tell us in brief the results of experiments on the use of Baluchistan and Punjab coals on the North-Western Railway ?

Answer : So far as steam coal is concerned it, is a failure as the coal contains a lot of sulphur

and is inclined to spontaneous combustion. It generate fumes when burning in loco motive boilers and is detrimental to the health of the operators. We tried it in stationary boilers as well, but the result was not satisfactory. It burns away very quickly and gives very little value.

Question : We understand that you have introduced steam operated rocking grates in locomotive boilers. Has the experiment been successful ?

Answer : The introduction of rocking grates enables locomotives to consume coal containing a high per centage of ash. Many engines have been fitted with rocking grates, and the policy is to instal these grates in as many engines as possible. It is definitely a success and operators like rocking grates.

Question : What has been the result of the use of blast pipe cap orifices ?

Answer : They give a better steam-up. We have been getting very inferior coals for about a couple of years, with the result that there is pack up of steam. The coal is very small in size with a very high ash content. In the grates it forms a sort of solid compound, preventing air from passing through, so that the coal cannot burn freely. That is why we want good quality coal and larger pieces of coal for our locomotives.

Question : Are you satisfied with the use of briquetted coal in the N. W. Railway ?

Answer : Our method of making briquettes is not on a manufacturing scale. It is only for effecting economy, reducing the consumption of coal which would otherwise have been used for comfort fires. Briquettes are used in comfort fires especially in areas where the winter is severe, e.g., Quetta, Kalka-Simla and Rawalpindi divisions. It is not a real briquette in the trade sense of the term.

Question : Your total requirements of coal in the year 1944-45 are 1,459,000 tons. Of this coal 122,000 tons are for power and engine workshops etc. The balance 1,337,000 tons is consumed by locomotives. What classes of coal do you need for locos.?

Answer : In October 1944 the General Manager N. W. R., asked the Deputy Coal Commissioner (Distribution), [vide copy of letter No. 8-FA/O, Dated 10-10-44 from the General Manager, N. W. R. Lahore, to the Dy. Coal Commissioner, (D), Calcutta. attached], to arrange for regular and even delivery of the following qualities of coal from Bengal/Bihar coalfields, in accordance with the classification of the Coal Grading Board, for their monthly requirements :—

Selected Grade "A" High volatile coal	10%
Selected Grade "B" Low volatile coal	30%
Grade I	50%
Grade II and III	10%

A list of coals which were used on this railway and gave satisfactory service during the period 1940-44 is submitted.

Question : Are you in a position to tell us whether any specific measures of fuel economy have been employed in the operation of locomotives?

Answer : We employ special staff to make the best use of the engine's fire and improve operational efficiency. We have increased the number of oil burning engines in the Karachi Division with a view to saving coal. We have now approximately 92 to 93 locomotives burning oil, and we would like to have more oil burning engines.

Question : Would you tell us your experience with diesel engines ?

Answer : Up-to-date we have diesel engines working in the Karachi division, and the experiment has not been comprehensive to give really good and satisfactory conclusions. Perhaps the engines were what are called war products and were not built to the standard. From Karachi to Quetta for a distance of about 180 miles there is a stretch of land without water, and here the diesel engines are of enormous value.

Question : Have you considered any main lines for electrification ?

Answer : No. Unless the suburban service of the N. W. R. is of sufficient density, electricity does not help.

Question : Your consumption of coal from the year 1935-36 to 1944-45 for a period of 9 years shows a steady increase. It is up by about 50%. Could you tell us whether this represents an increase in railway operation ?

Answer : The increased consumption is due to the poor quality of coal received during the war years, large engines taking up bigger loads and consuming more coal, and consumption by mail trains running at high speed. During the war we had an enormous increase both in the passenger and goods traffic. We have now passed the peak period and have gone definitely below the peak.

Question : Are there any bottle-necks in the N. W. R. system so far as the distribution of coal is concerned?

Answer : Once we get our wagons away from Ghaziabad, there is no specific bottleneck. We have a statement prepared on the morning of every day showing the actual quantity of coal that is in transit, and we pursue the movement.

Question : Have you enough wagons to meet the requirements of Punjab coal for movement?

Answer : All the wagons are sent to a central pool which is operated by the P. W. I. They fix a target, and we have to work to that target. It is up to the P. W. I. to allot wagons to the collieries and see to it that the allotted wagons get through to the collieries.

Question : There is a complaint that higher freight rates are charged in the N. W. R. What is your freight rate from Makerwal to Lahore ?

Answer : The freight rate from Makerwal to Lahore is Rs. 8 per ton. For the first 200 miles, the rate is .145 pie and from 200 to 400 miles the rate is .15 pie. For other coal, for the first 200 miles the rate is .165 pie. The Punjab coal is given preference over other coals. Coal coming through from Jharia to Lahore, a distance of 1,200 miles, gets the benefit of telescopic freight rate.

Question : Has there been any appreciable demand for the provision of sidings from the Punjab collieries ?

Answer : No. Provided an applicant is in a position to pay the cost of a siding and there is sufficient coal for loading, it is generally provided.

Question : Will you tell us what proportion of coal you got by sea before the war ?

Answer : As a matter of fact, we did not get very much. We are accepting coal shipments through the sea route in order to economise on wagons and to help the sister railways, and for various other reasons. Sea freights are fantastic at the moment.

Question : The N. W. R. were working coal mines for a considerable period before they abandoned them. Was that coal unsuitable ?

Answer : We do not know about the Dandot mine which was abandoned just after the war in 1919, but Khost was kept going for quite a long time, probably for political reasons.

(copy)

The General Manager,

N. W. R., Lahore.

8-FA/O

10th October 1944.

The Deputy Coal Commissioner

(Distribution),

No. 1, Council House Street, Calcutta.

Coal requirement of railways

A list of coals which have been used on this railway and have given satisfactory results over the past four years is sent herewith.

2. The list shows the suppliers' names, brands and their seams. The High Volatile coals from the Raniganj fields have been grouped as selected 'A', while those from the Jharia coal fields or Low Volatiles have been shown separately as

selected "B" and grades I, II and III. It is, however, remarked that the coals have been grouped according to the grading of the Coal Grading Board and our experience with these coals. Your attention is invited to paras 3 and 4 of this office letter No. 8-FA 65 dated 24th August 1944, to the address of the Secretary Railway Board, New Delhi, and copy endorsed to the Coal Commissioner, Calcutta.

3. It will be appreciated if arrangements are made to supply this Railway with brands shown in the accompanying list under Selected "A" to the equivalent of 10% of our monthly quotas. These brands are the most economical and have been found most suitable for use on fast and important services on the plains sections of this railway. Poniat and Charanpur seams should predominate over the Disherghar seams, as the former have been and are more largely used than the latter. The latter, however, are required for use on the Karachi Division, where due to the sea atmosphere Poniat's soon deteriorate.

4. 30% of our monthly quotas should consist of coals shown under Selected "B" which are considered more suitable on sections where operating conditions are abnormal. Out of the two series of coals supplied by Giridih Colliery, i.e., Giridih Mail (Karharbaree seam) and Giridih Passenger (Karharbaree and Serampore seams) larger quantities of Giridih Passenger will be acceptable to this railway, but 2,000 tons of Giridih Mail must be allotted every month for use on the Narrow Gauge engines on the Kalka-Simla Section, as this is the only brand which can be used without trouble. Ekra Khas has been found to be the most suitable and economical brand for use on the heavily graded sections on the Quetta Division. Badjna and New Marine have given good results on the Rawalpindi Division and are also suitable for use on certain sections of Quetta Division. Jardine Skinners, Bararee and Turner Morrison's Lodna/Bagdigi are very good quality Jharias and are excellent coals for important services on plains sections. These brands all fall under the Selected "B" group and it is requested that allotments of each be made every month.

5. 50% of the monthly quotas may consist of grade I including Godhur which is one of the most suitable brands for use on Quetta Division and 10% of grades II and III.

6. It is stressed that the supplies of Selected "A" Selected B, Grades I, II and III coals according to the percentages given above may be arranged regularly and evenly throughout the month. Early arrangements should also be made to supply the coals recommended above for use on this Railway, as the brands allotted during the past few months have not been very suitable or economical.

Sd. D. M. HAMBLBY,

for General Manager

N. W. Railway

High Volatile Coal.

Selected Grade A).
(Poniati or Ranigunj Series).

Suppliers	Brand	Seam
Balmer Lawrie & Co.	Barmondia	Disherghur
Apcar & Co.	Charanpur	Poniati
Meneill & Co.	Disherghur	Disherghur
Do.	Jamuria	Poniati
Lutchipur Coal Co.	Lutchipur	Disherghur
Chandan Mall Inder Kumar	Manohar Bahal	Disherghur
B. N. Mondal & Co.	Nundi	Poniati
Bird & Co.	Saltore	Disherghur
Andrew Yule & Co.	Seebporo	Poniati
Bird & Co.	Sirka	Sirka
Gillanders Arbuthnot & Co.	South-East Baraboni Khas	Poniati
East Barabom Coal Co.	East Baraboni	Charanpur
Turner Morrison & Co.	Sripur	Poniati

Low Volatile Coal.

Jharia or Barakar and Karharbaroo Series.

(Selected—B).

Colliery Supdt. Giridih	Giridih Mail	Karharbaroo
Do.	Giridih Pass	Karharbaroo & Serampur.
H.V. Low & Co. Ltd.	New Sindih	17
K. B. Seal & Sons	Kalithan Girgaon	17
S. D. Mehta & Co.	Ballihari	16
Jardine Skinner & Co.	Bullihari	15
Central Tentulia Coal Co.	Central Tentulia	15
Jagan Nath Om Parkash & Co.	Suderadih	15
Oriental Coal Co.	Begunia	Begunia/Ramnagar.
Jardine Skinner & Co.	Bararoo	13, 14, 14-A, 15,
Bird & Co.	Budruchuck	13, 14, 15.
Octavius Steel Co.	Gasltan	13, 14, 15.
F. W. Heilgers & Co.	Bhulanbararoo	12, 13, 13-B, 14, 15.
Bird & Co.	Mudidih	12, 13, 14.
Gillanders Arbuthnot & Co.	Ekra Khas	12, 13, 14.
Karam Chand Thapar & Bros.	Badjna	Badjna
Griental Coal Co.	Badjna	Badjna
New Marine Coal Co.	New Marine	11, 12, 13, 15.
Mohatta Brothers	Patherdih	13, 14, 14-A.
Williamson Mager & Co.	Angrapatra	12, 13, 15.
Agabeg Brothers	Jogta	12, 13, 14.
Turner Morrison & Co. Ltd.	Lodna Bagdigi	12, 14.
H. V. Low & Co.	Bhalgora	11, 12, 14.
Jardine Skinner & Co.	Khoira Kandwadih	13.
Anderson Wright & Co.	Central Kirkend	12, 13.
Trigunait Brothers	Jharia Khas	11, 12, 13.
Kirkend Coal Co.	Kirkend	11, 12, 13.
Sendra Bansjora Colliery Co.	Sendra Bansjora	11, 12.
East Ena Colliery Co. Ltd.	East Ena	10, 11, 12.
Wali Ram & Co.	Madhuban Lodna	11, 12, 13.
H. P. Benorjee & Co.	South Jharia	10, 11, 12.

Grade I

North Badjna Coal Co.	North Badjna	Badjna
North Burakar Coal Co. Ltd.	Lodna	11, 12.
Do.	Suratand	11, 12.
F. W. Heilgers & Co.	Sendra	12, 13, 14, 15.
Bird & Co.	Katras	12, 13, 14, 15.
Amrital Ojha & Co.	Bansdeopur	11, 12, 13, 14.
B. K. Roy	Gonsadih	11, 12, 13.
Bagadigi Kujama Colly. Co.	South Kujama	11, 12.
Ram Saran Das & Brothers	Bhaggutdih	11, 12.
Bholanath Dash & Co.	Busserya	11, 12.
H. V. Low & Co. Ltd.	Simlabahal	12.
East Bhaggutdih Colly. Co.	East Bhaggutdih	10, 11, 12.
Kalyanji Mavji & Co.	West Bhaggutdih	10, 11, 12.
S. D. Mehta & Co.	Kujama	10, 11, 12.
Koshabji Pitamber	Dobari	10.
Malyanji Mavji	Industry	10.
Kasunda Nyadi Colliery Co.	Kasunda Nyadi	10.

<i>Suppliers</i>	<i>Brand</i>	<i>Seam</i>
Kalyanji Mavji & Co.	West Ena	10-B.
Butto Kristo Roy	Godhur	10 Ker, 11, 12.
<i>State Railway Coal—</i>		
Manager Kargali Colliery	Kargali	
„ Bharkunda Colliery	Bharkunda	
„ Bokaro Joint Colliery	Bokaro Joint.	

GRADE II

Lower Badjna Coal Co.	Lower Badjna	Badjna.
Eastern Syndicate Ltd.	West & New Badjna	Badjna
H. V. Low & Co.	Lakurka	11, 12, 13, 14.
Moti Ram Roshan Lal & Co.	Kirkend	11, 12, 13.
Pandaberra Colliery Co.	Pandaberra	11, 12.
National Coal Co.	Angrapatra	11.
S. D. Mehta & Co.	South Tisra	10, 11, 12.
D. Vital Ram	Dheriajoba	10, 11, 12.
East Bhagora Colliery Co.	East Bhagora	11, 12.
Kalyanji Mavji	Khas Kirkend	10, 11.
Golukdih Coal Co.	Golukdih.	10.
Alkusa Nyadi Collieries Co.	Alkusa Nyadi	10.
Central Kujana Coal Co.	Central Kujana	10.
Dhanji Devji & Sons	Teesra	11, 12.
Rajapur Colliery Co.	Rajapur	10
Manager, Jarangdih Colliery	Jarangdih	

GRADE III

Bengal Jharia Colliery Co.	Bengal Jharia	10.
Khemji Dossa & Sons	Lower Upper Jharia	10.
Amarsingh Gowamal	Teesra	10.
R. B. Wali Ram Taneja	Model Jharia	10, 11, 12.
S. D. Mehta & Co.	Jeenagora	11, 12.
K. B. Seal & Sons	Kalithan Jeenagora	10.
Pure Jharia Colliery Co.	Pure Jharia	10.
Central Alkusa Colliery Co.	Gondudih	10.
Sansar Chandra Mukerjee	New Lakurka	10.
Khimji Waliji & Co.	India Jharia	8, 9, 10.
Dasna Premji & Co.	Bright Jharia	10.
Central Jharia Colliery Co.	Central Jharia	8, 10.
Khasjoyrampur Coal Co.	Khas Joyrampur	11, 12.
Ghela Panchan & Co	Lower "	11, 12.

North Western Railway.

(A) Statement showing Indian coal consumed by locomotives commencing from 1935-36 to 1944-45.

Particulars	1935-36 tons	1936-37 tons	1937-38 tons	1938-39 tons	1939-40 tons	1940-41 tons	1941-42 tons	1942-43 tons	1943-44 tons	1944-45 tons
Indian coal consumed by locomotives	951440	946942	1066574	1071130	1017149	11283330	1297522	1239026	1290046	1337523

(B) Statement showing Indian coal consumed for all other purposes such as pumping engines, workshops etc., from 1935-36 to 1944-45

Indian coal consumed for all other purposes such as pumping engines, workshops etc.	95460	93031	93996	92099	62759	72137	93568	113705	128201	122352
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(C) Total of (A) and (B) above from 1935-36 to 1944-45.

Indian coal consumed for all other purposes such as pumping engines, workshops etc.	1046909	1039974	1160570	1163229	1079908	1200467	1391090	1352731	1418247	1459875
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30. Written Evidence sent in by the General MANAGER, H.E.H. The Nizam's State Railway.

I give below my replies to questions 14, 15, 16, 17, 19, 20, 22, and 27 questionnaire I.

Question 14.—We have two Collieries on this Railway, at Bhadrachellam Road and Belampalli. The procedure for the supply of empties is as under.

Bhadrachellam Road.—The supply of empties is dependent on the time they are handed over by the M.S.M. at Bezwada. We have two mixed trains and 1 goods train by which the empties are normally moved to Bhadrachellam Road for supplies to the Collieries.

Belampalli.—In the case of supply of empties to Belampalli, the supply is mainly dependent on empties available at Secunderabad and Kazipet, which are worked to Belampalli by special trains or by goods trains according to train room available.

It is therefore not possible to adhere to the 10-hour system of supplies and no change in the system of supplies is recommended.

Question 15.—The present system of supplies is the same as that in existence in 1940 and has worked well. No change would appear necessary.

Question 16.—No private weighbridges are installed in the Collieries and neither does this provision appear necessary as the Railway has installed its own weighbridge.

Question 17.—No.

Question 19.—No complaints have so far been received in regard to the over-loading of coal wagons, but complaints are received of short receipts particularly with M.G. Wagons which have been transhipped *en route*. This is being watched and test weighments made from time to time.

Question 20 (3rd sentence only).—No.

Question 22.—This Railway does not support in principle the quotation of seasonal rates for transport of coal, but considers that efforts should be made to encourage the movement of coal in the off season by a freer supply of wagons so as to relieve the pressure on stock during the busy season.

Question 27.—The enclosed statement gives particulars of the quantities of coal used by this Railway for different services during the last ten years. This Railway gets its main supplies from the Singareni Collieries Co. Ltd. and a small quantity from the Ballarpur Collieries Co. Ltd. for use at Balharshah.

(ANNEXURE REFERRED TO AS REPLY TO Q. 27).

H. E. H. The Nizam's State Railway.

Coal Usage & C. During the Last 10 Years.

Coal issued for all purposes					Coal issued for all purposes from different sources						Remarks.
Year	Loco-motives	Steam Pumps & Stationary boilers	Shops and Miscellaneous purposes	Total	Tandur (Bellampalli).	Kothagudem (Bhadrachellam Road)	Singareni.	Ballarpur.	Sasti.	Total.	
	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	Tons	
1935-36	134757	5273	3515	143545	86162	..	33447	208	23728	143545	
1936-37	133848	5305	3318	142471	84896	..	32961	..	24614	142471	
1937-38	144925	5972	3009	153906	85887	2515	33384	6930	25190	153906	
1938-39	154765	6098	3213	164076	78303	3168	34492	24967	23146	164076	
1939-40	154379	7321	2912	164612	79762	33221	4077	23027	24525	164612	
1940-41	152047	7032	2940	162019	67245	45933	3141	21132	24568	162019	
1941-42	174004	7647	3351	185002	73386	60082	2739	23885	24910	185002	
1942-43	176166	6989	3331	186486	105682	51547	41	14025	15191	186486	
1943-44	176500	7644	3784	187928	117602	41417	17	14549	14343	187928	
1944-45	167518	7299	3473	178290	120086	41325	44	8332	8503	78290	
Average				1942-43	6662	6562	Colliery closed	6126	6395		
Calorific value (Cals)				years							
				1944-45	6627	6634		6131	5999		
				years							
Average				1942-43	15.96	15.38	in the year 1941-42	18.81	15.94		
percentage as content				years							
				1944-45	16.37	14.53		18.33	20.45		
				years							

QUESTIONNAIRE II

I give below my replies to questions 23, 24, 25 and 26 of Questionnaire II.

Question 23.—The pooling of rail freights so as to keep the price of coal at the same level at different centres is impracticable as rail rates vary with the length of haul.

Question 24.—I do not agree with the view that the fixation of rail freights on a uniform basis for all qualities of coal is unsound. Charging different rates for different grades of coal will only complicate rating and there appears no case for it so far as collieries in the Hyderabad Dominions are concerned.

Question 25.—I am of the opinion that the principle of "what the traffic can bear" should generally influence the freight rates for coal. As coal forms a large proportion of the traffic carried by railways the rate charged per ton mile for coal should, as far as possible, be kept above the level of the over-all operating costs per ton mile. The cost of moving coal on this railway is not separately available.

Question 26.—I do not favour the suggestion that reduced rates should be charged for train loads of coal consigned to one consumer as the rates charged for coal are already on a low basis and the clearance in train loads is by itself a facility.

31. Written Evidence sent in by the General Manager, Mysore State Railway.

QUESTIONNAIRE I

Only item VI of the questionnaire refers to this Railway and the following remarks thereon are offered.

VI.—The procurement of our future requirement of coal rests with the Railway Board.

About 85,000 tons of coal will be required per year. We have no Collieries of our own. Singareni Collieries supply our requirements, say about 84,000 tons per year, supply being made from Kothagudem, Tandur and Singareni.

28. Grade I & II. Standard Engines Y.D. and Y.B. with wider fire box, are designed even to burn the lower grades and this is good. We have at present 11 Y.D. and 10 Y.B. engines and in addition, there are 65 engines of other types, such as HPS, M, MS, MHS etc.

QUESTIONNAIRE II.

Item No.	REMARKS.
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I. CONSTITUTIONAL.

1 & 2. If the Indian Government should consider that all the National wealth should be used in the interest of nation without

The Central Government will have to have a Minister for controlling the national mineral wealth including coal and distributing equitably between provinces who have or have not such vital necessities for progress.

II. ECONOMICS OF THE COAL INDUSTRY.

Structural Organisation of the Industry.

3. Since the coal is power, leaving the same for haphazard exploitation is improper.
4. Vested interests are created now without a planning for utilisation of available coal power equitably but are being enjoyed by a few pioneers in the field in the absence of protective control by Government.
5. No.
6. There has been an equitable distribution of coal by a public body represented in Government instead of secret competitive exploitation by influential few.

Ownership and Management :

7. Yes.
8. Yes.
9. Yes.
10. State ownership in the working and disposal of coal desirable.

Finance.

- 11 & 12. Cannot offer opinion.

Production.

- 13, 14 & 15. Cannot offer opinion.
16. By carefully scrutinising demand and supply and introducing measures to attain economy in consumption.

Distribution and Marketing.

17. All the different varieties of coal should be properly graded and prices fixed in proportion to the calorific value. These should be distributed to different industries depending upon the absolute necessity of the quality for the purpose and supply arranged by coal distribution department, if necessary having such distributing centres at different parts of India.

18. Yes ; Yes.

19. Yes.

20. There should be technical directors inspecting now and then and contacting producers and distributors under the

Transport.

22. Yes. The Zone depends upon a regular survey of demand and supply.
23. This is essential as coal being the source of power, forms in many industries the largest item of expenditures in production, governing the cost of production and profit at present where industries are started in provinces more to be self sufficient. But the natural location of industries, if considered by Central Government on a national basis does not need any regulation in equalising freight as the industries move towards favourable places depending upon various cost of raw materials. Decentralising industries needs regulation of cost of coal to equalise cost of production unless there are other advantages in procuring other raw materials cheaper. This will result finally in fixing the cost of coal considering the actual cost of coal and margin of net profit in the industry. This means that Government should have hand in the industrial concerns checking their cost of production and rate of profit, wherever coal is vital as source of motive power. Especially in Railways, a **review** of cost of coal per ton and the **total cost** involved in this single item of largest expenditure will show how some Railways especially Mysore State Railways are working under the greatest disability at times paying **DOUBLE** the rate per ton. For a public utility concern like Railway at least the cost of coal should be equalised by Central Control so that the benefit of better rates for travelling public may be ensured. Mysore State Railway is contending against heavier grades of track and heavy rate for coal both of which contribute to increase the working costs as against H.E.H. the Nizam's State Railway for instance, with easier grades and low cost of coal. These will have to be taken to account while fixing the rate of coal.
24. This is not necessary or possible. When there is central control all inferior variety of coal can be consumed for the nearest zone duly despatching better quality outside, thus reducing the tonnage to be carried far.
25. This should be subsidised by the Central Control and the revenue and movement of coal may be controlled by the Central Authority. To some extent such railways will be paying higher rate for coal than at present though they are nearer the colliery. The coal carriage and movement should be borne by the Central Board which is fixing the all India cost as per experience of distributing food-stuffs and clothing at uniform rates irrespective of the place and distance carried.

26. Answer to item 25 covers this.

27. If this is decided by the Central Control and when Railways are State Controlled there will be no difficulty for routes.

28. The total number of wagons for carrying can be determined, when demand is properly surveyed and the number of wagons so required for movement of coal to different Railways may be pooled in common interest.

Price and Profits.

29. Coal is to be rationed at uniform rates to all industries after a thorough survey when it is done the rate is to be fixed as well as the quantity etc.

30. Yes.

31. This can be done as in the case of food control or textile control in India.

32. The price should be in proportion to the calorific value of the coal.

33. We have not worked.

34. When there is central control all these are eliminated.

Taxation.

35. Cannot answer.

36. Cannot answer.

37. Cannot answer.

III. CONSERVATION OF HIGH GRADE METALLURGICAL COAL.

38 to 49. Not concerned.

IV. CONSERVATION OF HIGH GRADE STEAM COAL.

50. This depends upon the calorific value of the coal.

51. Cannot answer.

52. Yes. This depends upon a survey and determination of the best use it can be put to.

53. Yes, as already explained.

V. CONSERVATION GENERALLY.

54 to 60. Cannot answer.

61. Yes.

62. I agree with the views but cannot give data.

63. Cannot answer.

64. Yes.

VI. MINING LEASES AND FRAGMENTATION

65. Cannot answer.

66 to 70. Cannot answer.

71. Yes ; by 1, 3 and 4 methods.

VII. OPENING OF NEW COAL FIELDS

72. Cannot answer.

VIII. ADMINISTRATIVE MEASURES.

73. This should be included in the cost of production of coal while fixing rate by the Central Control.

74. All these should form the sub-sections of central coal control and institute research Laboratories to effect improvement in production, distribution and consumption of coal.

75. Cannot answer.

32. Written Evidence sent in by the Manager and Engineer-in-Chiefs, Morvi Railway.

QUESTIONNAIRE I

I beg to subjoin this Railway's replies to the questions put up by the above Committee :—

I. GENERAL

We have no remarks to offer.

II. GRADING & EXPORTS

We have nothing to say except that the export of coal should not be allowed out of India—especially when heavy shortage of coal is experienced in India.

III. PORT FACILITIES

This Railway has no remarks to make.

IV. RAILWAY FACILITIES

Questions.—13 to 16. No remarks to offer.

17. Coal is booked freight paid. But certain industries demand Railway Receipt freight to pay. Such a request from big industries should be entertained.

18. No remarks to offer.

19. There are some complaints for underloading this seems to be due to slackness of despatching and transshipping stations.

Questions.—20 to 22 no remarks.

V. RAISING COSTS

Questions.—23 to 25 no remarks to offer.

VI. RAILWAY COAL REQUIREMENTS.

26. This Railway will have mainly to reply on selected grade coal of Indian collieries.

27. This Railway has been consuming approximately 20,000 tons of coal mostly ponjati and Sibpur—annually for the last ten years. This Railway does not own any colliery but depends entirely on Bengal for its coal requirements.

28. This Railway's locomotives—both metre gauge and narrow gauge—have been designed for low tractive effort and their boilers have low fire box volumes and gate areas and therefore can only be worked efficiently with selected grade coal with ash content not exceeding 11%.

None of our locomotives have been adopted for burning a different grade of fuel as in view of this Railway's low figures of coal requirements it has not been considered justifiable to adopt old locomotives which will, as soon as possible, be replaced by modern locomotives with wider fire boxes.

29. No remarks.

30. This Railway does not design its own locomotives and hence no remarks.

VII. STOWING.

Questions. 31 & 32 no remarks.

VIII. MISCELLANEOUS.

Questions.—33 to 40 no remarks.

QUESTIONNAIRE II.

I beg to reply to the questions as follows :—

Q.N.10 There is no objection to the private ownership but State should exercise control on production etc.

18. Yes, I agree.

20. The Coal Grading Board should be the responsible body for ensuring that proper quality of coal has been supplied.

51&52. From the Railway consumers point of view I do consider that there has been a wasteful use of the high grade steam coal in so far as Railways prior to the war have been using high grade coal for shunting & branch line working. I consider that Railway should attempt as far as possible to restrict the use of high grade steam by (1) continuing its use to engines working on passenger services (2) by introducing more widely proportioned fire boxes on new engines (3) by adopting existing engines of orthodox design for oil burning. (4) By more extensive use of Diesel Engined Locomotives, particularly for shunting. (5) More extensive use of oil fuel & Petrol engines for pumping & electric power generations in workshops, running sheds, watering stations etc.

61 The use of pulverised coal has not been invested with the importance it deserves. Undoubtedly more extensive use of pulverised coal colloidal fuel would result in a huge saving of coal.

62. I agree with the views expressed in this para.

33. Written Evidence sent in by the General Manager, Jodhpur Railway.

QUESTIONNAIRE I

Q. GRADING AND EXPORTS.

7. So far as Railways are concerned it is necessary to grade coal by seams and not collieries.

13. From this Railway's coal receipts for January and February it would appear that there is a shortage of wagons.

26. This Railway will presumably revert to the pre-war method of obtaining coal, namely calling for tenders and allotting contracts on a basis of quality *cum* price as arrived at from previous experience and trials.

27. Necessary Statements are enclosed.

28. The boilers on this railway are designed to take Indian grades of coal and no modifications have been carried out.

29. Does not apply to this railway.

30. New Locomotives will be to Standard designs.

(STATEMENTS REFERRED TO IN REPLY TO Q. 27).

Statement showing qualities and quantities of coal obtained during last 10 years from the other supplying coal fields.

Year	Grades of Coal		Total Quantity
	Selected Grade	First Grade.	
1935-36	20131- 2	40741-12	60872-14
1936-37	22737- 7	46311-14	69049 -1
1937-38	21364-18	50791-10	72156- 8
1938-39	24605- 3	55209- 3	79814- 6
1939-40	27620-10	63042-14	90663- 4
1940-41	30945-12	72391-13	103337- 5
1941-42	27858-10	44689-19	72548- 9
1942-43	26702-16	39740-19	66443-15
1943-44	20915-19	55195-14	76111-13
1944-45	37239- 0	30239- 4	67478- 4
Total	260120-17	498354- 2	758474-11

Statement showing total tons of coal used on all loco motives

Year	Passenger and Mixed	Goods	Shunting including siding	Department	Total	Remarks
1935-36	28258	14230	4570	4234	51292	
1936-37	30788	17803	3675	2887	55153	
1937-38	31605	19537	3994	2690	57826	
1938-39	34377	17378	2712	4928	59395	
1939-40	36731	24219	3228	7322	71500	
1940-41	35933	22747	3044	4637	66361	
1941-42	35411	27311	3351	4278	70351	
1942-43	28743	26936	3794	3861	63334	
1943-44	28213	19144	3821	4088	55566	
1944-45	29238	20697	3647	4601	58183	
Total	319297	210302	35836	43526	608961	

QUESTIONNAIRE II

My only comments on the Indian Coalfields Committee's Questionnaire No. II are general and come under Distribution and Marketing.

In pre-control days this Railway selected coals for the yearly contracts on the basis of previous experience and usually did not accept any other coal except after extensive trials had been carried out. The selection was therefore restricted.

If coals are reliably graded periodically on an analysis basis railways will be able to make a much wider selection and will avoid the necessity of ordering trial lots of coal in an endeavour to increase the number of acceptable coals.

34. Written Evidence sent in by the Manager and Engineer-in-Chief, Cutch State Railway

QUESTIONNAIRE I

Q. 26. This Railway in pre-war times used to get its coal requirements by sea (Calcutta to Kandla a port of Kutch) and proposes to do so as soon as ships are available. Till then transport by rail (and by Gulf of Kutch from Navlakhi Terminus on Morvi Railway) will continue as at present.

Q. 27. Figures of 10 years' consumption of coal is as under :—

Year	Tons
1935-36	1684
1936-37	1371
1937-38	1362
1938-39	1410
1939-40	2230
1940-41	1865
1941-42	1675
1942-43	1625
1943-44	1913
1944-45	2004

Q. 28. We have been using "Selected Grade" coal either Ranigunj or Jheria Series in our Locos.

QUESTIONNAIRE II

The reply to question 72 is :—

"There are only very partially exploited deposit of coal in Kutch. The extent and quality remain to be determined. The Government of Kutch contemplate to develop them"

35. Written Evidence sent in by the Manager, Jamnagar & Dwarka Railway.

QUESTIONNAIRE I

Page 4 of the questionnaire—Railway Coal requirements.

Q. 26. The Jamnagar & Dwarka Railway would prefer coal from the Bengal collieries to be sent by the all Rail route to save wastage in transshipment from the Railway to the steamer at Calcutta and again from steamer to the Railway at a port this end.

Q. 27. The total requirements is now 1400 tons a month. It has risen from 10,000 tons to 16,800 in the last 10 years owing to the increase in traffic and the inferior quality of coal that is now being received. We have no colliery of our own. It has obtained through collieries Agents from Andrew Yule, Machneill and such other collieries giving selected grade coal.

During the war and after the control was established the Coal Commissioner sends it from the collieries convenient to him, viz. Poniaty (Yule), Central Kirkend II, Dhori (Bermo seam), Gopalchuck West II, Balliary, new Tasra, Central Kirkend 10 and others varying in grade from grade II to selected grade A & B.

Q. 28. We should like to have Poniaty selected grade coal which is only suitable for the Engines we have, & water available this side and the sea climatic conditions, no modifications in the Locomotives have been attempted nor are they possible with the facilities we have on the small Railway.

Q. 30. The same policy as is enunciated in para 28 above as with the climatic conditions. Boilers must be fed with the best coal to preserve them and give them a good life.

QUESTIONNAIRE No. II

Page 1. Para 1. Central Government should enact legislation to vest in itself the power to regulate mines and to control the production & distribution of coal.

page 1. para 2. Last sentence—yes.

Page 2. Para 4. The system has outlined its usefulness and should go. It should be replaced by direct Govt. control.

„ Para 7. I agree—unequal distribution, irregularity in prices to suit individual pockets mixture in supply, irregular

& irresponsible transport are some of the lapses of the present system.

Para 8. No.

Para 10. State ownership—Separation throughout.

Para 16. If after Government control, it is found that there is still a deficit import from foreign countries—specially Africa is the only solution. Substitution of coal by liquid fuel will entail shortage in the latter and one or the other will have to be implemented by outside import. Again the substitution of coal by oil will entail heavy capital outlay and tax the resources of the country which could profitably be utilized for other more needed industries.

Page 3. Para 17. I would prefer a system of price fixation allied to the Government controlled distribution.

Para 18. I agree.

Para 20. Government.

Para 22. It is difficult to make comments in absence of the information regarding situation of the collieries and the analysis of coal held by each.

Para 23. Railway will not agree as they cannot for obvious reasons undertake uneconomical haul.

Para 24. There would be no objection to superior coal bearing a slightly higher freight as the difference if any will be made good by less coal of the superior quality being consumed than that of the inferior quality.

Para 25. Item III is the only solution as Railway cannot assess overall hauling costs for different traffics carried.

Page 4. Para 26. No. It may violate conditions of Sections 42 & 43 of Railway act.

Para 27. There may be some but these are unavoidable as Railways have to regulate their traffic according to the capacity to handle goods at various junctions.

Para 28. I agree entirely.

Para 29. The only solution is that the Government should fix prices with due regard to each grade of coal leaving it to the consumer to take advantage of what he wants.

Page 4. Para 30. It should be common fixation.

Para 31. With the absolute Government control this query should not arise.

Para 32. Equal to the quantity to be saved in consumption in the different kinds of coal with due regard to the fact that the use of lower quality should be encouraged where possible by a lower price in cost and in freight.

Para 33. I am sorry I cannot say but an average of 12½% profit should be enough.

Para 34. With the Government control no middleman or no commission would be needed.

Page 7. Para 73. A combined charge should be made & distributed by the Government direct.

Para 75. Yes.

36. Written Evidence sent in by the Manager and Engineer-in-Chief, Gondal Railway.

QUESTIONNAIRE I

VI. RAILWAY COAL REQUIREMENTS

(27) Tons. 157758. We have no collieries of our own, but we get our coal supply from the Government of India Coal Controller.

(28) Our present Locomotives are designed to burn Bengal coal and this is being used from the beginning of the Gondal Railway. Percentages of ash depend on the seam and grade of coal which varies from time to time and no definite figures are available.

(29) All existing locomotives on this Railway are coal burning and we lack in experience regarding adapting other possibilities. This Railway is under contemplation to obtain Diesel Engines for shunting purposes.

Written evidence sent in by the Manager and Engineer-in-Chief, Bhavnagar State Railway.

QUESTIONNAIRE I.

The replies to the questions with which we are concerned are as under :

RAILWAY COAL REQUIREMENTS

26. This Railway is in favour of obtaining coal through contractors by sea route as was done in pre-war days.

27. Total quantity of coal used by this Railway during the last ten years is Tons 2,52,804.

This Railway has no Colliery.

Total quantities of different qualities obtained during last ten years are as under :—

Poniati	Tons	2,02,109
Ballihari	"	8,203
Jhagrakhand	"	4,723
Jinagora	"	18
Seebpore	"	6,626
Mahuda	"	1,483
Bhutudi	"	2,131
Bhagabund	"	2,986
Lodna	"	6,657
Chirimiri	"	107
Bharatchuck	"	1,609
Deshargarh	"	3,543
Kusunda-Nyadee	"	5,609
TOTAL		2,43,804

28. The majority of present Engines are designed to use high grade Poniati coal (about 12% ash), but "N" and "G" class Engines (6 in all) have comparatively wider fire-boxes and give less trouble when burning low grade coal. No modifications have been carried out for burning a lower grade of coal.

30. New locomotives will be having wide fire-boxes suitable for burning lower grades of coal.

38. Written Evidence sent in by the General Manager G. B. S. Railways.

QUESTIONNAIRE I

With reference to the questionnaire parts I & II of your committee, I have to offer the following remarks :—

RAILWAY COAL REQUIREMENTS

Part I Para 26. The existing arrangement of procuring our coal requirements through the Railway Board will continue.

Part I Para 27. The quantity of coal used over the last 8 years is 1,90,100 tons an average of 23,762 tons per year. This is not a correct indication of our normal requirements as services were restricted from 1939 to 1945 due to the conditions created by the emergency of the War. Our normal requirements will be 35,000 tons per year.

Part I Para 28. Our non-standard locomotive are suitable for an ash percent age from 8.75 to 9.30. No modifications have been made.

Part I Para 29. No remarks to offer as no modifications have been made

Part I Para 30. New Locomotives will be duplicate of our existing non-standard locomotives.

Part II. No remarks.

39. Written Evidence sent in by the Scindia State Railways.

QUESTIONNAIRE I

Part II.

Question 7.—Yes, to be confined to seams only.

Question 8.—No. Discretionary.

Question 17.—The present system is complete.

Question 19.—No.

Question 27.—We always get our coal from Bengal Coal fields 14, 14A and 15 seams Selected grade about 10,000 a year.

Question 40.—Of course more wages and greater facilities will make the labour settled and contented.

Written evidence sent in by the General Manager, Darjeeling Himalayan Railway Company Ltd.

QUESTIONNAIRE I

I beg to give below the remarks against Part VI with which we are concerned.

VI. RAILWAY COAL REQUIREMENTS

Para. 26. In the prewar years our coal requirements were purchased through our Agents in Calcutta and when the Coal Control is withdrawn the same policy of procurement is likely to be adopted.

Para. 27. In the prewar years our annual requirements were approximately 14,400/18,000 tons and during the War years our annual requirements have been approximately 20,000/23,000 tons.

The special grade of Poniat and Koithe seams mixed coal previously supplied by the South East Baraboni Khas Colliery had proved suitable for our loco use and we would prefer to get this quality in future. During the War years we have been supplied with different grades of coal from different collieries and we found that the quality varied considerably.

41. Written Evidence sent in by the General Manager Bikaner State Railway.

QUESTIONNAIRE I

Q. No.

26. This Railway has been procuring selected grade coal from the coal fields in Bengal, through the agency of the Railway Board, during the last few years. It is proposed to continue procuring similar coal in future.

27. A statement is appended.

28. We have the following locomotives :—

Class and type of locomotives.	Grate area in sq. ft.	Total.
EE 2-4-0 . . .	9.6	5
BG 2-8-8 . . .	24.9	5
LM 4-6-0 . . .	15.0	8
M 4-6-0 . . .	16.0	4
MS 4-6-0 . . .	15.3	6
PB 4-6-0 . . .	16.0	7
RP 4-6-8 . . .	24.9	4
PO 4-4-0 . . .	12.5	10
GS 4-8-0 . . .	15.5	2
YB 4-6-8 . . .	23.1	4

55

The EE and PO types are utilised for shunting and the BG for goods services only. For these three types of locomotives, grade I coal can be used. All other types are used for mixed and passenger train services.

No modifications or adaptations have been necessary in any one of these locomotives for the use of any grade of coal.

29. Does not arise.

30. (It is presumed the word 'ordinary' is a misprint for 'ordering'). It is intended to obtain in future I.R.S. type of locomotives.

Statement showing quantity of coal (in tons) used by the Bk. S. Railway for different services from 1st January, 1936 to 31st December, 1945. (referred to in reply to Q. 27).

Year	For Loco boilers for all train services.	For Pump boilers.	For Shop and Shed furnaces.	Supplies to other depart- ments and private sales.	Total.	Source of receipt and quantities of coal shown under column 6.	
						Bengal coal-fields.	
						Selected grade	Grade II
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
936	21,413	2,724	219	793	25,149	25,149	..
937	24,049	2,965	236	104	27,354	27,354	..
938	27,182	3,062	273	107	30,624	30,624	..
939	31,049	3,294	292	90	34,725	34,667	58
940	32,663	3,355	173	102	36,293	36,293	..
941	31,683	3,215	272	262	35,432	35,432	..
942	32,573	3,934	246	636	37,389	37,200	189
943	21,404	3,464	238	117	25,223	24,391	832
944	19,678	3,748	246	14	23,686	23,686	..
945	24,495	2,366	269	279	27,909	27,909	..
Total	2,66,189	32,627	2,464	2,504	3,03,784	3,02,705	1,079

Written evidence sent in by the Agent and General Manager, Barsi Light Railway Company Ltd., Kurduwadi.

QUESTIONNAIRE II

I beg to offer the following remarks on paras 23 and 24 of the questionnaire II. On the rest have no remarks to offer :

Para 23. This proposal is not considered practicable. The coal rates are already

low and they cannot be reduced to keep the price of the coal at various centres at same level.

Para 24. There is some sense in this proposal but it is thought that it will be difficult for Railways to adopt different scales for different quality of coal and it may create a bad precedent for other class of traffic.

Section VI

MINING ASSOCIATIONS



43. WRITTEN EVIDENCE SENT IN BY THE INDIAN MINING ASSOCIATION, THE INDIAN MINING FEDERATION, AND THE INDIAN COLLIERY OWNERS ASSOCIATION.

QUESTIONNAIRE I

GENERAL

Question 1.—

Firstly, we do consider that the conditions still prevail, but to a lesser degree in view of improvement which has resulted from the increase in the powers of the Mines Department and from the creation of the Stowing Board. These conditions can never entirely disappear, but they can be brought very largely under control and this is at present being done.

Secondly, we consider the action taken by Government has proved satisfactory and adequate so far as it has gone, but we think that further action is required and that this should take the form of:—

extending the principle of compulsory stowing to conservation.

Thirdly, we do not consider that the statutory authority would have achieved greater progress since this subject is a very big one and progress on the lines mentioned above, while it should be steady and constantly increasing, is bound to be confined by availability of plant and skilled personnel.

GRADING AND EXPORTS

Question 2.—

(i) We feel that it is necessary for India to maintain a coal export trade for the following reasons:—

There are certain countries in close proximity to India which have practically no coal resources of their own and are, therefore, India's natural markets, e.g., Burma, Ceylon and Malaya. Any restriction on the export of coal from India to these countries might, we think, create bad feeling and result in repercussions in the shape of discriminatory action against other Indian commodities, or restriction on exports from these countries to India.

Coal is a bulk cargo and the knowledge that it is possible to get coal cargoes outward from Calcutta undoubtedly stimulates the flow of tramp tonnage into Calcutta which is a good thing for trade in general and for special imports such as rice from Burma in particular.

We think that this aspect is important in view of the fact that India is a large importer of food.

After the last war there was doubt as to whether India was producing sufficient coal for her own requirements and, therefore, Government stopped the export of coal; when export again became necessary to assist the coal trade, it took a considerable time to build up the export markets again. It would be a pity for India now to do the same as was done previously in similar circumstances and which proved, in course of time, to have been a mistake.

(ii) We consider that the Grading Board Act should be amended to allow the Board's surplus funds to be used in advertising Indian coal in export markets and in supporting Fuel Research.

Question 3.—

During the 1914/1918 war and the period immediately after it when there was a general dearth of coal, India shipped considerable quantities to the middle East, but owing to the fact that there were no set standards to uphold, in many cases poor quality cargoes were exported. In consequence, coal from India acquired a bad name with foreign buyers, and when other known quality coals became available from elsewhere, India lost her export markets almost entirely. Indian endeavour to recapture these in markets, which had become so vitally necessary, the recommendations of the Coalfields Committee (1925) were acted upon and the Coal Grading Board Act, 1925, was passed in September of that year. Three months later the Rules under that Act were gazetted.

The answer to Question 3 is:— 'Grading', meaning the action taken under sections 4 to 8 of the Coal Grading Act, definitely influenced buyers in foreign ports to purchase 'graded' Indian coals and ousted foreign coals from Indian ports, but once this had been done, it was the coal shippers themselves and not 'Grading' which maintained this position. The Coal Grading Board Act in fact, fulfilled its purpose, which was to give to buyers of shipped coal a Government guarantee and, with it, confidence to continue buying Indian coal. When shipments are resumed the Act will still have this influence.

Question 4.—

Average prices quoted .—(From "Indian Coal Statistics").

	Jap. Rs.	Indian Rs.	S. A. Rs.	Welsh. Rs.
1939 Colombo		26/13 (nett)	26/13 (nett)	39/14 (t. i. b.)
Singapore (Ex. Wharf)	21/5	21/9	21/3	
Burma (c. i. f.)	17/8			
1937 Colombo (t.i.b.)		18/5-28/4	18/15-26/10	26/10-36/4
Singapore (Ex. Wharf)	20/11	21/-	21/11	27/2
1936 Colombo (t.i.b.)		17/5	18/5	27/11
Singapore (Ex. Wharf)	16/5	17/2	17/2	27/4
1935 Colombo (f.o.b.)		16/14	17/8	25/4
Singapore (Ex. Wharf)	14/12	15/8	15/8	27/2

Average prices quoted.				Bombay.		S.A.	
Indian (Dishergarh).				Welsh.		Rs.	
Rs.				Rs.			
1939	16/7/10	(c.i.f.)	.	10/12/10	(declared to Bombay im- ported).	16/4/2	(declared Bombay im- ported to)
1938	15/8/-	(")	.	23/15/1	(-do-)	17/13/8	(-do-)
1937	18/4/-	(")	.	22/4/4	(-do-)	No Imports	
1936	11/11/-	(")	.	18/6/10	(-do-)	15/7/9	(-do-)
1935	11/13/9	(")	.	19/14/4	(-do-)	14/8/9	(-do-)

Karachi. (all t.i.b.)

Indian.				Welsh.		Natal.	
Rs.				Rs.		Rs.	
1939	20/3/-	.	.	-		21/0/4	
1938	21/14/-	.	.	-		22/9/4	
1937	19/1/-	.	.	-		21/-/-	
1936	14/5/4	.	.	-		14/12/6	
1935	14/2/-	.	.	23/-/-		14/12/-	

Question 5.—

The introduction of the -/8/- special rebate in 1936 undoubtedly stimulated the export of coal and, in fact, this concession just turned the scale in the Ceylon Government Railway contract that year, as had it not been for the price advantage of the concession, the Ceylon Railway would probably have gone to S.A. coal again whereas the contract that year was placed with India for the first time for several years.

It is difficult to assess the value of these concessions at present because conditions are bound to have changed as a result of the war and until there is again a free market it is impossible to ascertain comparative values c.i.f. the various ports of export.

Question 6.—

The rates of freight on coal from Jharia to the ports in question are as follows :-

Karachi City	.	.	.	Rs.16.12.10
Madras Harbour	.	.	.	Rs. 13.11.7
Bombay	.	.	.	Rs. 14.13.7

(i) In each cases the figure shown includes the present freight surcharge of 20% and excludes the production and labour fund and other cesses that are normally collected by the Railway along with railway freight.

(ii) For the purpose of this question the Jharia rates may be taken as typical of the Bengal/ Bihar coalfield. Freights from other booking stations are in some cases a few annas higher and in others a few annas lower.

The 'leve' of sea freights from Calcutta at which shipments to these ports become economical by comparison with the rail route is in the neighbourhood of :-

Karach	.	.	.	Rs. 121-
Madras	.	.	.	Rs. 9/-
Bombay	.	.	.	Rs. 12/-

Question 7.—

(i) We consider the whole question should be carefully investigated, and while we do not think a regrading of all coal seams is necessary, we do consider that the Coal Grading Board should have powers, under certain conditions, to regrade any coal which appears in the Grade list. If the destruction of good quality coals is, in future, prohibited, the objection to sectional grading disappears since it is up to the owner to work the section in such a way that he can later work the rest of the seam.

(ii) The grading of the whole of the seams whether in situ, or in wagons, does not necessarily ensure 100% extraction of the seam. It is pointed out that in development work only a section of the seam would be formed into pillars; moreover, when sand stowing was adopted thick seams had to be worked in sections and it is not possible to work a thick seam so that the uniform analysis of the coal produced would be obtained throughout the whole life of the seam. The present system of grading particular portions of the seam, therefore, is still necessary.

Question 8.—

The grading of coal for the internal market is desirable so long as it is not made compulsory.

Question 9.—

No.

PORT FACILITIES

Question 10.—

We will not attempt to describe the coal loading facilities at Calcutta, but would like to draw

attention to the reduction in coal loading berths from 10 before the war to the present number of 5; while the concentration of loading facilities and the pooling of coal have contributed to the successful working of the Port of Calcutta under stress of war, these conditions are not conducive to satisfactory shipment of exports under normal trading conditions. We consider additional loading berths are necessary, and in particular we wish to emphasize the complete inadequacy of the present stacking ground. Even with the limited number of shippers who have been permitted to operate during the war, stacking space at the Docks has been most inadequate, and the situation will be more acute when there are a large number of shippers operating, and a variety of different grades and sizes of coal held at the Docks awaiting shipment.

Question 11.—

We consider that generally speaking the facilities for discharging coal at Indian ports are inadequate, though it must be admitted that in a number of cases, *e.g.*, Cuddalore, Tuticorin, etc. this is inevitable owing to the nature of the port itself. Whenever the nature of the port permits an endeavour should be made to provide the ideal conditions which are the discharge of coal direct into wagons with the steamer lying alongside the berth. Discharging facilities have latterly been particularly inadequate at Madras.

Question 12.—

Bunkering facilities are available at Calcutta, Bombay, Madras, Cochin, Karachi, Vizagapatam and Chittagong. At other ports, *e.g.* Cuddalore, Negapatam, Tuticorin, Calicut, etc. no facilities. Facilities, where they exist, are fair.

RAILWAY FACILITIES.

Question 13.—

In our opinion the railway facilities in the coalfields and elsewhere are not even adequate to handle the present despatches of roughly 25 million tons per annum, much less the estimated future requirement of 32 million tons. The importance of this question of coal transport cannot be over-emphasized, as it carries with it not only the prosperity of the coal trade but also the success or failure of the whole of the Indian industrialisation programme. We are not qualified to comment in detail on the existing, or desirable, railway facilities, but we will mention a number of general aspects of this problem on which we consider detailed examination to be necessary.

- (a) It is clear that railway transport is the most serious problem for the coal industry at the present time and early steps should be taken to institute an enquiry, at a high level, into the subject of improving both facilities and the efficiency of the railway organization.
- (b) Facilities are lacking at depot stations and elsewhere to handle the coal traffic offering. In this connection it may be noted that in the past when larger

tonnages of coal were handled, the Railways (particularly in the Jharia field) had the comparatively easy task of moving coal from a smaller number of larger collieries, whereas these units are now raising much less and the traffic comes from a much greater number of smaller collieries.

- (c) Lack of power coupled with inadequate workshop facilities or arrears of maintenance, results in an unduly high proportion of sick locos.
- (d) The Dhanbad allotment area is a somewhat unwieldy unit, which in normal times handles about 20% more traffic than either of the other two Bengal/Bihar allotment areas. With the proposed expansions in the Bokaro and Karanpura coalfields which are essential if the increased output targets are to be achieved we think the opening of a separate allotment area to serve the Bokaro Ramgarh and Karanpura coalfields should receive serious consideration. The headquarters of this new allotment area would have to be determined in the light of railway operation; possible alternatives are Barkakana, Bokaro and Gomoh.
- (e) The debacle on the E.I. Rly. in November 1945 which was supposed to have been due to an epidemic of beri-beri on the Dinapore division suggests that the personnel reserved for sickness and contingencies is inadequate.
- (f) Examination of the Railways' ability to cope with coal traffic should not be confined to the despatching end. There are a number of important junctions which have more or less permanent restrictions which interfere seriously with coal movement, *e.g.* Mokameh Ghat Katni Murwara, Waltair, Khandwa, Agra East Bank, Ujjain, etc. Steps should be taken to break down these limitations.
- (g) Various restrictions have been imposed quite rightly the Coal Control during the war on the movement of coal from certain collieries, fields etc. in certain directions for traffic reasons. The Railways should now aim at being able to move any coal in any direction and according to the demand of consumers or colliery owners.
- (h) Coal, like many other Indian commodities, is a seasonal traffic; that is to say that in the December/May half-year output, and therefore potential despatches, may always be expected to be appreciably higher than in the June/November half-year. Unfortunately the busy season for coal coincides with the busy season for a number of other commodities, and this is one reason why coal transport is always in difficulties during this season. A more

serious aspect of the matter, however, is that this is also the season when a number of seasonal industries want to take their coal; principal among these are Cotton Ginning, Sugar Mills, Rice Mills, Tea Gardens (partially) Tobacco Curing, Brick Burning, and domestic consumption for Northern India. In the majority of cases a consumer insists on getting his coal during the season or not at all; if therefore coal cannot be delivered owing to transport difficulties the demand is automatically extinguished; the cotton is not ginned or the bricks are not burnt, and that much off take is lost for ever. This is a serious matter for the coal industry and the only solution is for the Railways, which are a national service, to equip themselves to handle the peak traffic. Whatever any one may do or say, India is, and will always remain, a seasonal country.

- (i) Now that all the major Railways, particularly the B.N.R., are Government controlled, the old system of routing should be revised. Under this system, which is still in force, the basic principle is that the Railway on which the traffic originates carries the traffic to the furthest possible point on its own system before handing over to a foreign Railway; thus coal booked at Asansol (E.I.R.) for Bombay would be carried as far as Naini before being handed over to the G.I.P., instead of being handed over to the B.N.R. at Asansol for carriage by the much shorter route via Nagpur. Many of these anomalies have been temporarily overcome by the Coal Distribution organization, but the rules are still there and will be reverted to if they are not changed. We consider also that the telescopic rates of freight on coal should be applied only in the total distance travelled, and not calculated separately according to the distance travelled over each individual Railway system, as at present.
- (j) It is open to question whether there is an overall shortage of wagons since the Railway budget figures just published appear to indicate the contrary and it is possibly more a symptom of operational and other troubles rather than the actual lack of rolling stock.
- (k) We have already emphasized the importance of coal transport both to the country and to the trade. At the time of writing there is a large unabsorbed demand for coal throughout India; there is also an appreciable surplus of available coal over and above what the Railways can move. The only factor which prevents this unabsorbed demand and this coal surplus from linking up, to the mutual benefit of the country and the coal trade, is the transport bottle-neck. The major contributor to

this bottle-neck is the E.I.Rly. which handles the great bulk of the coal traffic; we consider therefore that a most searching enquiry should be made into the operation of this Railway and the facilities provided by it. We feel most strongly that the present Committee, with its assessors, should undertake such an enquiry.

Question 14.—

There is no standard system of supplying wagons to collieries. The E.I.Rly. in some cases have a 10 hr. loading system, wagons being supplied twice per day whilst at some collieries on the B.N.Rly. a 20 hr. loading system is in force. We would prefer a twice daily 12 hr. loading system, wagons being placed at 8 a.m. and 8 p.m. We however think that any system which proves of benefit to the Railway should be adopted provided wagons are always available for the 24 hrs. of the working day.

Question 15.—

We consider that while there is a shortage of coal or transport facilities a more definite system of distribution should be retained rather than that the methods in 1940 be re-introduced. Whatever system of rationing is in vogue we emphasize that it should be most strictly adhered to and that to achieve the allotment (rationing) any short supply of wagons to a colliery on one day should be made up on the following day.

Question 16.—

We consider that the installation, by collieries, of weighbridges is beneficial to both the collieries concerned and to the Railway administration. We are of the opinion that this concession should be resumed and that a permanent concession of -1/- per ton would be adequate compensation to collieries.

Question 17.—

We consider the present system is satisfactory and should not be altered.

Question 18.—

Grants of siding accommodation to collieries are unnecessarily and unreasonably delayed on various grounds and in many cases are not allowed at all. Extension of the existing sidings and grant of new sidings up to or as near the pit mouth as possible should be in the hands of a statutory body composed of a Committee from the Railways and the Coal Trade. The terms of the siding agreement itself are most objectionable.

Question 19.—

At present wagons must be loaded to actual carrying capacity. Previously 1 ton overload or 2 tons underload were permitted. This margin should be reinstated. The installation of private weighbridges at sidings will eliminate overloading and underloading as wagons can then be adjusted before they leave the colliery.

Question 20.—

Many collieries are fitted with mechanical loading devices of one type or another, and their efficient and economical working is dependent upon an assured supply of open wagons. The Question as framed could not be answered without producing a large amount of probably unnecessary detailed information, but it should perhaps suffice to state that the supply of covered empties to mechanical loading collieries, which is all too prevalent at the present time, results not only in unnecessary expenditure owing to double handling but also in loss of output. We should however perhaps mention that pilferage of coal from open wagons throughout the Indian Railway system is so heavy that every means should be explored of realising the ideal of a covered wagon that can be loaded from mechanical plant. We understand that there is today a model of a covered wagon suitable for use at a mechanical loading plant. This was designed by a member of the trade and is now in the possession of the Chief Mining Engineer of the Railway Board.

Question 21.—

We do not think the introduction of the group system of railway freights will be feasible.

Question 22.—

Except for major industries such as steel, cement, etc. we do not think consumers would be attracted by seasonal freight rates. In their case it would probably not be profitable for the Railways to offer rates that would be really attractive, and moreover the limited stacking space of most consumers would probably prevent them from building up sufficiently large stocks to give any appreciable measure of traffic relief to the Railways during the busy season. We have already touched on the subject of seasonal consumers in para (h) of our reply to question 13 of the Questionnaire, and we do not think many of them would be prepared to lock up money by buying their coal six months ahead of an always uncertain season; as a single instance we quote the case of Cotton Ginning factories, a large number of which are owned by big operators or speculators and only let out at the beginning of the season, often to a different party each season.

RAISING COSTS :**Question 23.—**

Such figures as have been received are attached in original.

Question 24.—

There have only been relatively few coal cutters installed over the last 10 years. In the first place the cost of installation of machines was more than the Industry could in its depressed state carry and in the second place when during the war a better price for coal was obtained coal cutters were in very short supply.

At present there is little difference in cost between coal cut by hand and that cut by machine.

*Not printed

Lack of spares, coupled with the dearth of trained operators has largely militated against machines being used to their full advantage and in old mines machines cannot be used to any great extent in pillar cutting where galleries have originally been driven high in thick seams. In new fields machines can probably be used at least in development but conditions underground must be the deciding factor.

Generally speaking the trend is towards increased mechanisation.

Question 25.—

It is the normal practice to lay rails as near the working face as possible. The shortage of loading labour following the withdrawal of the women from the mines will no doubt provide a further incentive to all collieries to reduce the carrying distance for loaders.

STOWING :**Question 31.—**

(i) We consider that, although restricted in its scope, the Stowing Board has already done valuable work by not only encouraging voluntary stowing but also by providing the means of dealing with fires which threatened extensive mining areas.

(ii) There have been complaints in connection with the slowness of dealing with applications when immediate action may be called for but apart from this we consider that the extent of assistance given to collieries doing voluntary stowing is not sufficient and the revenue now being collected, or even the maximum which could be collected under the Act, would not be sufficient to meet more than a small part of the cost of voluntary stowing operations. By far the greater portion of stowing at present done is in the interests of conservation as well as for safety; this being so the Board have had to limit the quantum of assistance in cases where voluntary stowing is being undertaken.

(iii) We propose to deal with this matter in detail in answer to Questionnaire II.

Question 32.—

Such figures as have been received are attached in original.

MISCELLANEOUS :**Question 33.—**

During the war it has been possible to acquire land for mining purposes under the Defence of India Rules and the ease with which this has been effected has thrown in to relief the inadequacy of the previous arrangements under the Land Acquisition Act. The normal procedure of acquiring land takes at least six months and in many instances land is required urgently by collieries for purposes such as dumping overburden spoil from open cast workings, depillaring operations, construction of huts for temporary labour, etc. It is therefore most important

*Not printed.

that modifications to the existing procedure should be introduced by which Coal Companies can be put in possession of the land they require with not more than one month from the date of application.

It is understood that the Provincial Governments will no longer allow land to be acquired under the Defence of India Rules and early action is required to amend the existing legislation.

Question 34.—

Briquetting has, as far as we know, only been carried out in recent years in the Assam and Baluchistan coalfields. In the latter the controlled price of briquettes is Rs. 55/- explant with the cost of coal at about Rs. 30/-. Even then briquettes are more costly than steam coal imported from the Bengal/Bihar fields, and briquetting is therefore obviously not a commercial proposition in Bengal/Bihar where steam coal is freely available at lower prices. In our opinion it is only a possible proposition in the tertiary coalfields of Assam, Baluchistan and the Punjab, where firstly the percentage of steam coal produced is negligible and almost the entire output is slack, and secondly the finished product has a substantial freight advantage over steam coal imported from the more distant fields.

Question 35.—

(i) A certain amount of research on froth flotation was made by Randall in 1920 and since then this subject has been investigated from time to time by individuals. So far as we are aware in the majority of cases the results were negative and until recently nothing tangible has been achieved. During the past few years "float and sink" tests have been carried out at the Indian School of Mines by Dr. C. Forrester

Mr. J. Thomas, Messrs. Anderson Wright & Co's. Chief Mining Engineer, has made a special study of this subject over a long period. Large scale tests on the gravity principle have been carried out and the erection of the first washing plant in India is now contemplated by them in the Bokaro coalfield.

The significance of these results is that high ash coking coals which are amenable to washing treatment can be cleaned to produce low ash coking coals, which can be used for blending with inferior coking coals not amenable to washing or which cannot be washed economically.

The problem, however, is not simple. Whether or not a coal seam is amenable to washing depends on the physical character of its constituents and a physical survey of each seam is, therefore, necessary as a preliminary research to investigation of washing possibilities.

(ii) The economics of coal washing are that it is a feasible proposition when the increased amount which can be realised for washed coal is more than the total cost of washing, including capital outlay on plant and the cost of raising the impurities which are rejected.

Question 36.—

A comprehensive list of research subjects has already been given in the Indian Mining Association's letter addressed to the Secretary of the Indian Coalfields Committee, dated 17th January, coupled with the suggestion that the activities and scope of any Research organisation formed should be directed by a special Board mainly representing the interests of producers and users of coal rather than any particular Government Department and the support of the principal industrial enterprises should be enlisted through their existing Associations.

Question 37.—

This question we assure is mainly addressed to those who produce metallurgical coke but we consider that the question of removal of excise on Benzol is necessary if encouragement for production is to be given.

Question 38.—

Yes ; these can be extended as it becomes necessary.

Question 39.—

We are not aware of any educational facilities entirely run by the State for the children of coal fields labour and staff, but there are a number of Higher English Schools which receive the grant-in-aid and which exist on the grant-in-aid and the tuition fees. We are aware that the conduct of such schools is most difficult owing to inadequate funds. Many collieries run small primary Schools or Middle English Schools which are attended both by the children of labour and staff and in some cases scholarships are given for selected children to proceed to the local H.E. Schools. In the main Technical Schools are poor in equipment and it is our opinion that even in the Dhanbad School of Mines the standard of education achieved by the students should be higher.

Question 40.—

We are convinced that it is not possible to persuade the present labour force to work one hundred per cent. at the collieries since they are predominantly agricultural workers who only attend the mine as part-time labourers. We believe that improvements may result in the migratory tendencies of the present colliery labour force if they are provided with consumer goods and are educated to enjoy a higher standard of living. We do not think it will be possible to establish a really permanent labour force unless it proves practicable to introduce sufficient unskilled labour of a different type. A long term policy should be to encourage the labour in the use of greater comforts of life and to provide good housing conditions and other similar amenities. The Coal Mines Welfare Fund now in force and the trade has every hope that with its help these objects can be achieved.

SUPPLEMENTARY NOTE BY INDIAN MINING ASSOCIATION.
LAND ACQUISITION FOR COLLIERY PURPOSES

Question 33 of the first Questionnaire issued by the Indian Coalfields Committee read as follows :—

“ 33. It has been frequently suggested that Section 84 of the Bengal Tenancy Act should be amended to facilitate the summary acquisition of surface rights over land for colliery purposes. Have difficulties continued to be experienced due to the absence of this power and, if so, of what nature and degree of acuteness ?”.

The reply submitted by the Indian Mining Association was as follows :—

“ During the war it has been possible to acquire land for mining purposes under the Defence of India Rules and the ease with which this has been effected has thrown into relief the inadequacy of the previous arrangements under the Land Acquisition Act. The normal procedure of acquiring land takes at least six months and in many instances land is required urgently by collieries for purposes such as dumping overburden spoil from open cast workings, depillaring operations, construction of huts for temporary labour etc. It is therefore most important that modifications to the existing procedure should be introduced by which Coal Companies can be put in possession of the land they require within not more than one month from the date of application.

It is understood that the provincial Governments will no longer allow land to be acquired under the Defence of India Rules and early action is required to amend the existing legislation”.

This note deals more fully with the difficulties, which continue to be experienced by Colliery Companies on account of the absence of summary acquisition powers, and also discusses possible legislative remedies.

Acquisition by private negotiation.—Collieries generally have to resort to private negotiations with surface occupiers due to the inadequacy of satisfactory statutory powers which are dealt with below. Surface occupiers include landlords as well as tenants, the relations between the two being governed by the provisions of the local Tenancy Acts in the case of agricultural holdings, and the Transfer of Property Act in the case of non-agricultural holdings. These special relationships usually preclude the possibility of direct negotiation with tenants as the tenants' rights are restricted. In disposing of his holding a tenant cannot confer the right to utilise the tenancy for any purpose other than that for which it was created generally agriculture, or in the case of homestead lands, residential. The Colliery Companies have therefore to conduct their negotiations through the landlord and frequently this involves dealing with agents of absentee land

lords or with groups of co-sharers who can seldom be persuaded to join in any settlement. In cases where the colliery owner is also the immediate landlord of the surface occupier the difficulty in securing land has in the past been less marked, but tenants having rights of occupancy are becoming increasingly conscious of the security of their position and have already realised the urgency of the need of the colliery authorities and the latter's difficulty in obtaining possession by any other means. Where groups of houses are concerned, it is sometimes impossible to induce the occupiers to vacate even though liberal compensation and alternative sites are offered, and a serious position arises when these buildings become dangerous due to undermining for which the colliery manager is responsible under the Mines Act.

In recent years the increase in price of agricultural produce has been the cause of inflation in the prices demanded for agricultural land. Rates as high as Rs. 2,400/- per acre are being demanded for rent free first class paddy land ; such rates as this cannot have any economic justification.

Power provided in Mining leases.—Most mining leases contain clauses which purport to give to the Colliery Company certain powers which it can exercise when required to obtain possession of land. The mining leases are, however, granted by proprietor who have themselves no direct possession of the surface land comprised in the leasehold, except in some cases of waste lands which have not been settled. Even these are not available when there is an immediate tenureholder in possession of the whole mouzah. As such tenureholders and tenants are not parties to the mining leases the clauses conveying these powers are not binding on them in any way. And although the landlord usually undertakes to exert his influence in obtaining possession of land it is frequently the experience of collieries that no help is forthcoming.

Tenancy Acts.—Section 50 of the Chota Nagpur Tenancy Act which is in force in the Jharia Coalfield area reads as follows :—

“50 (1). Notwithstanding anything contained in Sections 46 & 47, the Deputy Commissioner may,—

(a) On the application of the landlord of a holding and on being satisfied that he is desirous of acquiring the holding or any part thereof for some reasonable and sufficient purpose having relation to the good of the holding or of the tenure of estate in which it is comprised such as the use of the land for any charitable, religious or educational purpose, or for the purpose of manufacture or irrigation or as building ground for any such purpose, or for access to land used or required for any such purpose, and after such enquiry as the Deputy Commissioner may think necessary, authorise the acquisition thereof by the landlord upon such condition as the Deputy Commissioner may think fit and require the tenant to sell his interest in the holding or

part to the landlord upon such terms as may be approved by the Deputy Commissioner, including compensation to the tenant,

(b) On the application of the landlord of a tenure or holding and on being satisfied that he is desirous of acquiring any land within the said tenure or holding for the purpose of mining or for any other purpose which the local Government may by notification declare to be subsidiary thereto or for access to land used or required for such purpose and after such inquiry as the Deputy Commissioner may think necessary, authorise the acquisition by the landlord or such land or part thereof upon such conditions as the Deputy Commissioner may think fit, and require all persons holding interests directly or indirectly subordinate to him in the land to sell their interests to the said landlord upon payment to every such holder of such compensation as the Deputy Commissioner may determine.

(2) (a) In determining the compensation to be paid under this Section the Deputy Commissioner shall take into consideration the matters specified in clauses first to fifthly of Section 23 of the Land Acquisition Act, 1894, and the damage, if any, resulting from the diminution of the profits of the land between the time of the publication of the notice under sub-section (3) and the time when the person making the application under clause (a) or clause (b) of sub-section (1) makes tender of compensation under sub-section (5).

(b) The Deputy Commissioner shall not take into consideration any of the matters specified in clauses first to sixthly of Section 24 of the Land Acquisition Act, 1894, nor any outlay or improvements on, or disposal of, the land acquired commended, made or effected after the date of the publication of the notice under sub-section (3).

(c) The Deputy Commissioner shall in addition to the market value of the land ascertained in accordance with the provisions of clause (a) of this sub-section award to the holder of any interest acquired under this section a sum of 20 per centum on such market-value in consideration of the compulsory nature of the acquisition.

(3) The Deputy Commissioner shall, before holding the inquiry mentioned in clause (a) or clause (b) of sub-section (1), give notice in the prescribed manner of the application for acquisition under this section and of his intention to hold such inquiry, to all persons known or believed to be interested in any land proposed to be acquired, and shall receive and decide any objection to the proposed acquisition which may be made by any person :

Provided that if any person, being the owner or lessee of the minerals lying under the land proposed for acquisition or under any part thereof shall so object to the Dy. Comm. such land or part of, there as the case may be, shall not be acquired under clause (b) of sub-section (1).

Provided also that if the landlord applies for the acquisition of a part of a holding, whether such part includes the homestead land of the raiyat or not, the Deputy Commissioner shall if the raiyat does not wish to retain the remainder of the holding, reject the application for acquisition, unless the landlord is willing to acquire the entire holding.

(4) On the acquisition under this section of a part of any tenure or holding the Deputy Commissioner may order such reduction of rent as may be fair and equitable.

(5) If the landlord making an application under clause (a) or clause (b) of sub-section (1) tenders to any person whose holding or interest or part thereof is being acquired, such sum as the Deputy Commissioner has determined as compensation under sub-section (2) and such person refused the same, the Deputy Commissioner may, on the landlord depositing the said sum with the Deputy Commissioner, give possession of such holding or interest to the landlord in the prescribed manner.

(6) Any person interested who has not accepted the award under this section may, by written application presented to the Deputy Commissioner within six weeks of the date of the award, require that the matter be referred to the principal Civil Court or original jurisdiction for determination in accordance with the procedure prescribed in Part III of the Land Acquisition Act, 1894.

(7) Nothing herein contained shall enable the Deputy Commissioner to authorise the acquisition of any part of a holding whereon a temple mosque or other place of worship sacred grave burial or burning ground exists."

The corresponding provision in the Bengal Tenancy Act in Section 84 which reads as follows :-

" 84. A Civil Court may, on the application of the landlord of a holding, and on being satisfied that he is desirous of acquiring the holding or part thereof for some reasonable and sufficient purpose having relation to the good of the holding or of the estate in which it is comprised, including the use of the ground as building ground or for any religious, educational or charitable purpose, and on being satisfied on the certificate of the Collector that the purpose is reasonable and sufficient,

authorise the acquisition thereof by the landlord upon such conditions as the Court may think fit and require the tenant to sell his interest in the whole or such part of the holding to the landlord upon such terms as may be approved by the Court, including full compensation to the tenant".

Recourse has frequently been had to Section 50 of the Chota Nagpur Tenancy Act in the Jharia coalfields. The procedure is less cumbrous than that of the Land Acquisition Act, apart from other defects of the latter Act to which reference is made below. In applying this Section an application is made in Court and the rates of compensation are fixed by the Court possession being

made over to the landlord of the holding. The defect in the Section is self-evident, as the power is restricted to the landlord whose co-operation has to be sought. This frequently proves difficult and causes considerable delay.

In Bengal it should be noted that no corresponding power is given to acquire land for industrial purposes and the questionnaire refers to this point in suggesting a suitable amendment to Section 84. It seems, however, undesirable to press for this amendment which is far from being a satisfactory solution. The question naturally arises as to whether both Acts could be amended to confer the right on colliery companies and not on the landlords, but this appears wholly impracticable as the purpose of the Tenancy Acts is to regulate the relationship between a tenant and his landlord. Any amendments on the lines needed will appear to be quite outside the scope of the Acts.

Power under the Land Acquisition Act.—The procedure in acquiring land for companies is laid down in certain sections of the Act. I quote the chief sections below:—

“ *Sec. 4. (1)* Whenever it appears to the Local Government that land in any locality is needed or likely to be needed for any public purpose a notification to that effect shall be published in the official Gazette, and the Collector shall cause public notice of the substance of such notification to be given at convenient places in the said locality,

(2) Thereupon it shall be lawful for any officer, either generally or specially authorised by such Government in this behalf, and for his servants and workmen,

to enter upon and survey and take levels of any land in such locality ;

to dig or bore into the sub-soil ;

to do all other acts necessary to ascertain whether the land is adapted for such purpose ;

to set out the boundaries of the land proposed to be taken and the intended line of the work (if any) proposed to be made thereon ;

to mark such levels, boundaries and line by placing marks and cutting trenches ; and

where otherwise the survey cannot be completed and the levels taken and the boundaries and line marked, to cut down and clear away any part of any standing crop, fence or jungle

Provided that no person shall enter into any building or upon any enclosed court or garden attached to a dwelling house (unless with the consent of the occupier thereof) without previously giving such occupier at least seven days' notice in writing of his intention to do so.

Sec. 38. (1). The Local Government may authorize any officer of any Company desiring to acquire land for its purposes to exercise the powers conferred by section 4.

(2) In every such case section 4 shall be construed as if for the words “ for such purpose ” the words “ for the purposes of the Company ” were substituted ; and section 5 shall be construed

as if after the words “ the officer ” the words “ of the Company ” were inserted.

Sec. 39. The provisions of section 6 to 37 (both inclusive) shall not be put in force in order to acquire land for any Company, unless with the previous consent of the Local Government, nor unless the Company shall have executed the agreement hereinafter mentioned.

Sec. 40. (1). Such consent shall not be given unless the Local Government be satisfied, either on the report of the Collector under Section 5A sub-section (2), or by an enquiry held as hereinafter provided, —

(a) that the purpose of the acquisition is to obtain land for the erection of dwelling houses for workmen employed by the Company or for the provision of amenities directly connected therewith, or

(b) That such acquisition is needed for the construction of some work, and that such work is likely to prove useful to the public.

(2) Such enquiry shall be held by such officer and at such time and place as the Local Government shall appoint.

(3) Such officer may summon and enforce the attendance of witnesses and compel production of documents by the same means and, as far as possible, in the same manner as is provided by the Code of Civil Procedure in the case of a Civil Court.

Sec. 41. If the Local Government is satisfied after considering the report if any, of the Collector under section 5A, sub-section (2), or on the report of the officer making an enquiry under section 40 that the purpose of the proposed acquisition is to obtain land for the erection of dwelling houses for workmen employed by the Company or for the provision of amenities directly connected therewith, or that the proposed acquisition is needed for the construction of a work, and that such work is likely to prove useful to the public it shall, require the Company to enter into an agreement with the Secretary of State for India in Council, providing to the satisfaction of the Local Government for the following matters, namely :—

(1) the payment to Government of the cost of the acquisition;

(2) the transfer, on such payment, of the land to the Company;

(3) the terms on which the land shall be held by the Company;

(4) where the acquisition is for the purpose of erecting dwelling houses or the provision of amenities connected therewith, the time within which the conditions on which and the manner in which the dwelling houses or amenities shall be erected or provided ; and

(5) where the acquisition is for the construction of any other work, the time within which and the conditions on which the work shall be executed and maintained and the terms on which the public shall be entitled to use the work ”.

It will be noted that in these sections stress is laid upon the purpose of the acquisition which must be for the public benefit. It has been established that when the primary object is personal gain, whether that be of a private individual or of a Company, the public benefit resulting from the action of the person or the Company, is too remote and the purpose cannot be said to be a public purpose. On the other hand, the Government has been constituted the proper authority for deciding what a public purpose is. It will be seen therefore that there is at any rate some measure of doubt as to whether a colliery company can legally invoke as a matter of right the provisions of the Land Acquisition Act to acquire its land. It is true that in the past collieries have used the Act but it is uncertain what attitude Government may take, particularly if any one affected by the proposed acquisition makes strong representation to Government protesting against the acquisition on these grounds.

The wording of the above sections shows in fact that acquisitions which are not for carrying out public works to be used by the public are not intended to come within the scope of the Act; the agreement which has to be executed stating the terms on which the public may use the work is meaningless in the case of lands acquired for depollaring purposes etc. In one respect only is the Act clear, and that is where land is acquired in connection with building workmen's houses and providing amenities.

Apart from the legal difficulties which might arise the procedure is long and complicated and a considerable time always elapsed before possession can be given. Reference has been made already to the lapse of emergency powers under the Defence of India Rules and it has become all the more urgent that steps should be taken to assist colliery companies in this important matter.

Suggested remedies.—The most practicable remedy seems to be to introduce legislation at the Centre to amend the Land Acquisition Act so as to clarify the position of colliery companies. For instance, sec. 38 (2) might be redrafted to make it clearly applicable in cases where the purpose of the company were not necessarily public purposes as referred to in Section 4 so as to eliminate any legal difficulty over this point.

Section 40 also appears to need a suitable addition to provide for the various purposes other than erection of workman's dwelling houses for which land is required by colliery companies, and consequential changes would require to be made in Section 41.

In addition to the above amendments, provision should be made in the Act itself for the introduction of a summary system whereby possession shall be made over within one month of the first application, on deposit of a sum to be settled by the Collector pending assessment and apportionment of compensation.

WRITTEN EVIDENCE SENT IN BY THE INDIAN MINING ASSOCIATION.

QUESTIONNAIRE II

Answer to Question No. 1

We do not consider that the division of responsibility for the coal mining industry between the Provinces and the Centre is satisfactory. There is no uniformity of action between the various Provincial Governments with the result that as far as Provincial matters are concerned the various coalfields do not stand on the same footing: any one province may be artificially assisted or hindered in competition with the other according to the dictates of the Provincial Governments in power at any given time. We are therefore of the opinion that the Central Government should take over powers from the Provincial Governments to regulate all matters in connection with mines and mineral development.

In support of the opinion given above we would point out the following factors in favour of Central as against Provincial control of the industry.

- (a) The Mines Department is on an All India basis and if it had been worked on a Provincial basis would be very much less efficient than it is today and would also have to provide duplicate staff in every Province.
- (b) The bulk of Labour Legislation affecting the coal industry is on an All India basis and variation between Provinces on this matter would have the most serious repercussions on the industry.
- (c) If it is decided it is essential to impose some measure of control regulating the winning and consumption of coking coals, this must be on an All India basis if it is to be effective.
- (d) The boundaries of Coalfields do not coincide with Provincial boundaries and, if therefore the control of the industry is Provincial, serious anomalies must arise.

The above-mentioned points clearly indicate that the majority of the bigger problems in the coal industry must be under Central control and it would therefore be most undesirable to leave the balance of Government contacts with the industry on a Provincial basis.

The extent to which powers over the industry should be exercised by Government and whether they should cover Production and Distribution of coal is dealt with in our replies to other sections of this Questionnaire.

Answer to Question 2

We consider it essential that there should be one separate Central Department dealing with all questions relating to minerals and mines including the coal industry. During the war Government control of the coal industry has worked as well if not better than similar control over other industries with the exception that the division of power between the Supply Department and the Labour Department has led to a lack of liaison between these Departments and a diminution of the efficiency of the main body

responsible for coal industry control viz. the Coal Commissioner's Office which is primarily responsible to the Supply Department. We are of the opinion that the problems confronting the coal industry and other industries concerned with minerals can only be satisfactorily handled if they are dealt with by a department concentrating entirely on this subject and centralising under its control all Governmental relations with the industries in question.

In connection with the matter of prior consultation with the industry before the introduction of new legislation, we would invite reference to our reply to question 37 of this questionnaire.

We are in favour of the Department being created under a Member of H.E. The Viceroy's Council and that he should be responsible only for this Department.

II

ECONOMICS OF THE COAL INDUSTRY

STRUCTURAL ORGANISATION OF THE INDUSTRY

Answer to

Question 3

We consider that the structure of the units of production in the coal industry is satisfactory with the following two exceptions :—

- (a) Certain of the units are of an uneconomic size and might therefore increase their efficiency by voluntary amalgamation.
- (b) Certain aspects of the policy pursued in the past by the Administration-in-charge of the Government Railway collieries has not been in the best interests of the industry as a whole.

Answer to

Question 4

We consider that the Managing Agency system in the coal industry has never shown its value to greater effect than during the last twenty years. In considering the merits and demerits of this system it must be borne in mind that in the Indian coal industry the individual units of production are very much smaller than their opposite numbers in countries such as England, America and Holland and are therefore less able to stand on their own as regards finance, equipment, staff, etc.

During the period stretching from the middle 1920s up to 1939 the Indian coal industry was in a state of acute depression with production costs almost equal to if not above the selling price. The supply of coal exceeded the demand and every possible measure to reduce costs was taken by the collieries leading to cut-throat prices, straitened finances and the passing of dividends. Many of the smaller collieries went into liquidation and the main reason for the bulk of the Indian coal industry not suffering the same fate was that the majority of the larger collieries were run by Managing Agents who were prepared to advance their own money to

keep collieries going and in many cases forego their remuneration.

It would be correct to state that a very large part was played in the development of the Indian coal industry by British interests which were, in fact, primarily responsible for the commencement of coalmining by modern methods in this country. Today, however, the position is that under the Managing Agency system, whether Indian or European, collieries are almost entirely owned by Indian shareholders and the only interests of Managing Agents are that they receive a percentage on profits in return for supplying technical and business management of a most efficient nature, without which the coal industry in this country would not be as highly developed as it is at present.

The Managing Agency houses have a long and progressive tradition behind them and to maintain this they are accustomed to taking a long view. They have interests besides coal to look to and it is unlikely that they will spoil this reputation by sacrificing the colliery companies under their management for the benefit of their other interests.

During the war years the coal industry has entered a period of prosperity but a prosperity combined with a serious shortage of equipment. This has been largely mitigated by the fact that the Managing Agents controlling large groups of collieries have been able to arrange for exchanges of plant from one colliery to another under their control and have thus avoided the reductions in output which must naturally have resulted if every colliery was dependent on only its own resources.

Reverting to the question of the size of the average unit in the Indian coal industry it should be emphasized that under these conditions certain important advantages are obtained by the grouping of collieries. Amongst these advantages the following may be enumerated:—

- (1) The employment of technical staff of greater ability and experience that could be afforded by individual collieries.
- (2) The centralisation and provision on a modern and elaborate scale of facilities and amenities of the following nature :—

Survey Offices

Zemindary Offices

Workshops

Hospital & Medical Staff

- (3) The installation of schemes requiring large sums of capital which are designed to serve not one but a group of collieries. In this connection we would particularly mention the winning, transport and stowing of sand by ropeways which in many cases involves the outlay of very large sums of money and a delay of a number of years before a return is obtained on this investment.

- (4) The centralisation of the organisation in Calcutta for the purchase of stores and equipment and the sale of coal. The larger groups of collieries purchase stores and sell coal to the value of many crores of rupees per year and for this purpose employ the very minimum of staff. If each individual Colliery Company has to provide and pay for its own organisation the cost will be very considerably increased and the efficiency and flexibility of the system appreciably reduced.

We are therefore of the opinion that not only has the development of the coal industry been largely due to the Managing Agency system but that its continuance on satisfactory lines is dependent on the perpetuation of the same system. It is in fact indisputable that today the most efficient collieries and those providing the greatest amenities for labour and staff are those controlled by Companies under the Managing Agency system.

The remuneration of the Managing Agents today is far from excessive, the services they render the Coal Companies are invaluable and it has been ascertained from experience that no other system can run a large organisation including a multiplicity of small units on such an economic and efficient basis.

Answer to

Question 5

The close alliance between units of coal production and consuming interests such as steel, cement, etc. is a feature common to the industry in all countries of the world from America to Australia. We do not consider it an unhealthy development provided it is of reasonable proportions and does not reach the stage at which consuming interests by the size of their holding can dictate the policy and price structure of the industry as a whole. One argument in favour of a proportion of the coal industry being allied to large consumers' interests is that the output of such collieries has an assured market which induces a degree of stability which is beneficial to the labour and staff concerned.

Answer to

Question 6

Following on our reply to question 5 we consider that the Indian Government Railways provide an instance where a consuming interest has obtained so large a control of the industry that it can affect and damage the prosperity of the industry as a whole. We have no objection and in fact consider it desirable that the Indian Government Railways should, own and operate their own collieries. In so doing, however, they should endeavour to combine working their own collieries to the maximum advantage to the railways with maintaining the whole coal industry in a state of efficiency and prosperity. During the last twenty years, however, the Indian Government Railways collieries have taken advantage of the fact that they are a non-commercial concern and are not compelled to work on a competitive basis. This combined with the fact that a large proportion of their coal is quarry

coal which can be worked relatively cheaply compared to coal from deep pits, has enabled them to force down the general level of prices in the industry to a stage where normal commercial concerns could not work at a profit and to maintain their very existence were compelled to adopt methods of mining which resulted in cheap coal but not necessarily efficient working. We are in fact of the opinion that the Railway Board's coal purchase policy combined with the ownership of collieries by the Railways has been one of the main factors in the last twenty years in depressing the coal industry, reducing the general level of efficiency therein and introducing many undesirable technical features.

In summary, we are of the opinion that there is nothing inherently undesirable in the existence of the Indian Government Railway collieries provided that their administration and the Railway Board's purchase policy is formulated on a basis which does not involve the sacrifice of the interests of the mining industry as a whole. It must be remembered that Railway collieries in producing coal have competitive advantages in as much as they do not pay taxes.

During the last 20 years coal production by the Railway collieries has resulted in depressed prices of purchased coal to an uneconomic level and it is, in our opinion, highly questionable whether it is moral for the State to produce coal with the result that the purchase price from commercial producers is depressed below that of economic production. As an example of this a statement showing coal purchase prices by the State Railways between 1929/30 and 1938/39 is attached. (Appendix 'A').

On this subject we strongly recommend your Committee to read paragraphs 209 to 215 of the Indian Mining Association's Memorandum on the Report of the Coal Mining Committee (1937) which will be found in Appendix 'B' to this reply.

OWNERSHIP AND MANAGEMENT.

Answer to

Question 7

We agree that the present system of ownership of mineral rights and the uncontrolled grant of leases can lead and has in the past led to certain undesirable features in the coal industry such as undue fragmentation, leasing of uneconomic areas and the prevention of connection between one property and another. In certain cases individual lessors have acted both to the best advantage of themselves and the coal industry but in others lessors have proved obstructive and also due to ignorance have worked against their own best interests. In our opinion this state of affairs can best be remedied by the introduction of legislation controlling the terms and conditions on which leases can be granted in the future and giving the power to make alterations and amendments to leases already in existence. We agree an alternative method of dealing with this problem would be the acquisition of all mineral rights by the Government but it appears probable that Government could obtain the same objective in the way of more efficient working of coal

without involving itself in the heavy expenditure that would be necessary and without setting up the complicated mechanism that would be required to administer all mineral rights in this country. We consider that Governments objective in the shape of efficient administration and the ready rectification of defective provisions in existing leases can be more efficiently achieved by the introduction of amending legislation than by placing this complicated matter under the control of a Government Department.

Answer to

Question 8

As mentioned above we consider that Government could by suitable legislation control the terms of future leases and amend past leases without acquisition and obtain equally efficient results thereby. If, however, we are asked to choose between the alternatives of State acquisition of mineral rights and State administration on behalf of the existing owners, we would consider that the latter alternative is preferable. We would however suggest that in such circumstances State administration should only be enforced where incompetency on the part of the existing owner can be proved. This has in certain instances been virtually the case where the Court of Wards has administered Estates on behalf of minors or bankrupts and in the majority of cases such administration has been of a high order of efficiency and probity.

It should not be lost sight of that certain owners of mineral rights particularly intermediate tenants have acted and are acting not only in an efficient but far-sighted manner. Royalty owners have undertaken large scale and expensive prospecting operations without the possibility of obtaining any appreciable return for a period of 10 to 20 years from the date of commencement of such prospecting.

Answer to

Question 9

In the event of minerals rights remaining undisturbed we consider that Government should introduce legislation controlling the terms and conditions on which coal-bearing lands are leased in future. This legislation should have reference more to items such as wayleave, depillaring rights, sizes of areas to be leased, etc. rather than the actual royalty and salami to be paid. We would draw the Committee's attention in this respect to our reply to question 68 of this Questionnaire.

Answer to

Question 10

We are most emphatically opposed to State working of coal in this country. Our views on the State's part in coal distribution and marketing are covered in our replies to other sections of this Questionnaire and we will deal therefore only with the question of State ownership and operation of mines.

The argument that nationalization of coal mines is to be adopted in England is no proof of its acceptability here and is no evidence of its intrinsic worth as it was merely introduced in England as part of a political programme

and few, save possibly the miners themselves, contend that nationalization leads to increased efficiency in the working of the mines. Another argument commonly put forward by political bodies to the effect that labour would be very much better off under nationalization has, in our opinion, no substance in it. There is a general consensus of opinion in the part of employers that labour conditions on the industry must be improved and it is doubtful whether Government would be any more able to assist the miners in the way of improved facilities than the individual employers guided by Government legislation are able and willing to do.

So far as the question of efficiency is concerned there is no doubt in our minds whatsoever that the transfer of the responsibility for the operation of the mines to Government control would lead to a considerable deterioration in results. Without looking to other countries, there are available instances in this country, of nationalization leading to a drop in efficiency such as the Calcutta Telephone System. The recent war condition led to a severe shortage of coal due to the labour shortage and a dearth of equipment. The industry's recovery from this state and the increased raisings achieved in 1945 are in our opinion a tribute to the efficiency of the industry and an indication of the results that can be obtained by a combination of profitable prices and individual enterprise. We have in fact every confidence that the coal industry can provide this country with all the coal that it requires and it should be emphasized that today the main stumbling block to increased raisings is the inability of the railways to handle the traffic available—railways which are both State owned and State managed.

There is at the present time every indication that the industry is pressing forward with the development of new fields, new collieries and improved methods of extraction by mechanisation and sandstowing. Given a sympathetic approach by Government to the problems of the industry there is in our opinion no reason to doubt that the coal industry under private initiative will produce all the coal the country requires at reasonable prices and with efficient methods of extraction. The change over from individual enterprise to Government control with bureaucratic interference and innumerable regulations would in our opinion involve a serious reduction in output. If in spite of the above arguments there are still those who are in favour of nationalization we would suggest that they defer a decision until they see the results of the nationalization of the mines in the United Kingdom. Which in our opinion, in spite of the proposed expenditure of £150,000,000 on new plant and equipment is likely to lead to a reduction in national output rather than an increase and a progressively unfavourable comparison with the results obtained in the privately owned coal mines of the U.S.A. In this connection it is interesting to note that coal production in the U.K. started decreasing steadily ever since Government assumed control of the mines and that this downward trend is continuing instead of being arrested by the introduction by the present Government of legisla-

tion extending Government control to actual ownership of the collieries themselves.

The cost to Government of acquiring the collieries in this country would be enormous, the organisation to be set up to administer the coal industry would on the scale of Government Departments be of prodigious dimensions and and it is extremely doubtful if all or even a majority of the existing technical experts would agree to work on Government's terms of remuneration. The above are however relatively minor objections and in our opinion the fundamental objection to State ownership and operation of the collieries is that experience has shown that this tends to result in a drop in efficiency, a weakening of initiative and an increase in costs. The maintenance of efficiency in the coal industry and an increase in output are essential for India's proposed industrialisation policy and we are convinced that the imposition of Government control at this stage would have a retrograde influence of most serious dimensions.

FINANCE

Answer to

Question 11

Any well managed concern should have no difficulty in obtaining capital today. Larger Managing Agents in the event of coal companies requiring any additional finance consider it their duty to make the necessary arrangements which they are always in a position to do.

Answer to

Question 12

In dealing with this question it is necessary to distinguish between over capitalization caused by inflated cost of plant, machinery, buildings and development and over-capitalization due to flotation of new Companies with too large a capital.

Over-capitalization, whatever the cause, is detrimental to the stability of the industry as it tends to militate against mining by the best methods in that it encourages extraction of coal regardless of future working to earn a return on the large capital and also makes it necessary for Companies to distribute by way of dividend profits which should be retained in the Company to build up reserves for replacement of plant etc.

Over-capitalization through inflated cost of plant, machinery, buildings and development has been met by granting to the industry special depreciation for the purposes of taxation but we are of the opinion that much of the effectiveness of these concessions has been lost through their being operative only up to March 1950. Much of the machinery and plant already ordered at high prices, will, through delay in delivery not be put into use before 31st March 1948 and will therefore not qualify or qualify only in part for the special depreciation. If this is to be avoided Government must allow a special depreciation to apply to all items which have been recertified irrespective of the date when they are put into use.

PRODUCTION.

Answer to

Question 13

It is correct to state that one of the chief handicaps of the Indian coal industry is the low output per head.

Attached are statements in original from those colliery companies who have provided figures and these should be treated as confidential.

It is not possible at short notice to obtain current corresponding information from foreign countries but we have tabulated the following figures which may be of interest :—

WAGE COSTS PER TON OF COAL.								
	UNITED	KINGDOM	GERMANY		BELGIUM		FRANCE	
	Sh. d.	Ratio.	R.M.	Ratio.	Francs.	Ratio.	Francs.	Ratio.
1927	10 5½	70.3	7.54	53.0	79.72	53.1	53.25	47.2
1928	9 4	71.4	7.68	53.1	75.10	57.6	48.73	48.5
1929	9 6½	65.9	7.51	50.0	84.63	52.9	49.83	44.9
1930	9 2	66.1	7.31	49.3	90.19	58.0	53.74	47.6
1931	9 1	65.8	6.26	48.3	74.45	60.1	49.88	49.9
1932	8 11	65.5	4.89	44.2	62.40	57.8	42.64	47.9
1933	8 7½	64.9	4.75	45.3	55.26	57.6	39.79	48.5
1934	8 5½	64.3	4.78	46.5	49.56	57.8	38.52	48.8
1935	8 5	63.3	4.80	46.7	46.05	48.1	37.70	48.3
1936	9 0½	63.0	4.75	45.6	..	..	..	..
	POLAND		CZECHOSLOVAKIA		NETHERLANDS			
	Zloty.	Ratio.	KC.	Ratio.	Gulden.	Ratio.		
1927	7.44	..	45.34	41.4	4.72	49.5		
1928	7.65	..	46.67	43.1	4.03	50.6		
1929	8.49	42.47	45.82	41.5	4.18	46.9		
1930	9.24	48.38	46.74	43.3	4.29	46.2		
1931	8.28	46.81	46.23	43.5	3.98	51.4		
1932	7.66	49.68	44.94	43.4	3.25	58.1		
1933	6.48	47.23	40.40	42.4	3.05	61.4		
1934	5.65	45.82	37.82	42.0	2.88	61.8		
1935	5.43	46.21	36.74	41.6	2.62	53.4		
1936	5.12	43.87	34.13	38.4	2.58	49.1		

The statement shows the wage cost per metric ton of coal in the currencies of each country, and the ratio between the wage cost and the total cost per ton at pithead.

Recent wage costs per long ton of coal disposable commercially in Great Britain were, during the first quarter of 1945, 24sh. 9 29d. and, in the second quarter of 1945, 25sh. 9 29d. These figures include all wartime increases, such as the 'Greene' and 'Porter' awards. (Board of Trade Journal).

Answer to
Question 14

The following suggestions are put forward for the improvement of the output per head of Indian coal mining labour :—

- (a) *Increased Mechanisation*—The trend towards mechanisation is steadily increasing and the effect of this should be of value to labour and should enable them to earn more money provided they are taught to utilise it intelligently. At present there is a lack of trained staff to operate machines which are now becoming available but there are training schools to provide staff to deal with the increased quantities of mechanical equipment that will be introduced. It is essential however that our remarks in this connection should be read in conjunction with our comments in subparagraph (b) of this question.
- (b) *Education*—Along the lines of inculcating into labour a desire to improve their standard of living in place of their present tendency to aim at a fixed standard of living and regulate the amount of work they do with a view to earning that minimum and no more. We have found in the last few years that with the improvement in the labour rates the general tendency among labour is to reduce the number of days work they do per week and the number of hours they do per day. This tendency has been accentuated by the general shortage of consumer goods on which the labour could spend their increased earnings. The percentage of coal mining labour which works for six days per week is small and the majority work for between four and five days per week while they are on the colliery and spend at least three months per year away from the colliery.
- (c) Following on (b) the Indian mining labour should be encouraged to adopt a fuller and more sustaining diet as at the present time potential output per day is largely limited by physical strength. The recent cut in the rice ration may have more unfortunate results in the coalfields than elsewhere because mining is particularly arduous work and inadequate rations will be a tremendous inducement to the miner to seek less strenuous employment. A special plea for the miner has been made to Government who have, however, not made him an exception.

- (d) Of great assistance towards this end would be a stable labour force which could be trained. At present areas in close proximity to collieries are our main sources of supply but it has been found that labour drawn from more distant parts are the most suitable as they are semipermanent, staying at work for periods of six to twelve months before taking a spell at home. It is hoped that the present plans to improve housing and other amenities will attract them to bring their families to the colliery area and support them there. It must not be lost sight of that such a policy extended over a period of, say, 25 years may ultimately affect the economy of the present recruiting areas whose population, being primarily agricultural, rely on mining in between the planting and harvesting seasons to augment their income.

Answer to
Question 15

- (a) The system of coal raising contractors should not in itself affect output. They are paid an agreed sum per ton of coal into wagons and normally themselves pay the labour engaged in producing and handling the coal. They recruit their own labour and a point in favour is that they are usually able to draw on sources of labour in a manner not open to the management. Some form of recruitment is necessary but generally speaking we prefer the sirkari system with departmental or central recruitment.

- (b) The system should not result in unsystematic mining methods since the colliery manager is solely responsible for the layout of the workings.

We are of the opinion that the system of employing raising contractors is not in the interest of improving the relationship between management and labour and they are now rarely employed in the deeper mines.

Answer to
Question 16

We believe that the following schemes in hand or proposed by the trade will go some way towards making up the estimated deficit :—

- (a) The development and enlarging of existing collieries which is now being undertaken.
- (b) The installation of new machinery and re-equipment generally of collieries which has been in abeyance for so long partly through the unavailability of the machinery and partly through the lack of incentive.
- (c) Development of new coalfields and opening up virgin areas in existing coalfields.
- (d) Increased sand stowing (commented on elsewhere).
- (e) The stabilization of the labour force [See Q. 14 (d)].

(f) Restoration as soon as possible of the system whereby remuneration to the miner is tied to output.

N.B.—The trade has already made suggestions along these lines to the Labour Department and has gone a long way to meet Government's demand for a minimum wage by agreeing to a "retention allowance".

The properties and the technical skill are available to meet the demand, plant can now be obtained on comparatively short delivery and the labour-supply can be maintained if the situation is carefully handled.

We have, however, grave doubts over the Railways' ability to handle the additional production. At present even the existing requirements are not being transported and stocks of coal are accumulating at mines with serious effect on output. The Railways will have to do their part in construction and handle the additional production. Necessary siding facilities will have to be made available and, above all, wagon supplies. We understand the requisite wagons and locomotives are now at the disposal of the Railways, but it would appear that the organisation has deteriorated to such a degree that the total daily supply is in even greater shortfall than ever before.

If mines are to be worked on a planned and scientific basis it is essential that coal be loaded direct from screening plant into wagons, and for this purpose a continuous stream of open wagons must be available. An examination of what actually happens day after day at any and every individual colliery will convince any one seeking the facts. Total daily figures for wagons supplies to the coalfields show the shortfall but individual examples only can show the irregularity of supply. The whole matter is a continuous heart-break to the owners, mining engineers, managers and workers alike. To the two former it deters them from embarking on efficient layouts, as they know that efficiency can only prove inefficient. The Manager does not know from day to day whether he will receive ten or one hundred wagons, but he must make his arrangements to suit either. The worker may or may not get his tubs in due time and he dislikes cutting coal unless his tub is at site. We pay for stacking that coal, but still he does not like it.

DISTRIBUTION AND MARKETING.

*Answer to
Question 17*

We do not consider that a Central Marketing Agency formed voluntarily by the Trade, or under Government aegis, is desirable though it is probably feasible by either method.

The objects of forming such an Agency would be to prevent the forcing down of prices to uneconomic levels, and to arrange fair quotas among producers in the event of future overproduction.

These objects can be achieved by simple methods, whereas a Central Marketing Agency would involve setting up cumbrous machinery which would in turn involve radical and unnecessary interference with the existing channels of Trade.

Moreover it would have the effect of discouraging individual schemes of expansion which are at present in hand and which alone can provide the increased output which is so essential over the next few years.

A system of price fixation allied to Government controlled distribution would certainly be adequate to secure the necessary stability in the Industry but we consider this unnecessary and undesirable in normal times.

We give below the outlines of an alternative scheme which we consider would be adequate.

We do not envisage any rigid regional or zonal groupings though the principle might be used to some extent.

In explaining the scheme which we would suggest as being adequate to achieve the desired objects without at the same time involving the danger of entirely upsetting the admittedly complicated mechanism of the Coal Trade we would venture to refer your Committee to Chapters IV & V of the Memorandum on the Report of the Coal Mining Committee 1937 submitted to the Government of India by the Committee of the Indian Mining Association. These Chapters have been reprinted for your convenience and are attached* to this reply as Appendix B.

In them are set out the reasons for the past weaknesses of the coal industry and a suggested remedy. We see no reason for anything but minor alterations to the remedy to suit existing circumstances. In brief the then Committee's conclusion was that the purchasing policy of the Railway Board was the main factor in depressing the coal trade and they suggested a method of purchase which would avoid any such result. But shortly the method was that a body should sit each year to decide fair prices for the Railway Tenders and that thereafter invitations to tender should be issued for specified quantities at the arranged prices. We suggest that a permanent Committee representing Government, the Railways and the trade should be set up to fix these prices and possibly prices for similar Government business.

And we would finally suggest that in the event of actual or potential overproduction causing such indirect price control to fail that a method of automatic quota allotment lies ready to hand under the system of wagon allotment by which a fair share in the supply of coal in the event of the necessity arising could be guaranteed to all.

In conclusion we would point out that we considered the above suggested remedy adequate to remove the difficulties of the Coal Trade in 1937. Since when it is unnecessary to point out there have been various improvements in the situation, the principle of which are :—

- (1) the rise in the price of coal to economic levels ;
- (2) the great increase in the level of consumption of coal ;
- (3) the establishment of co-operation between various sections of the coal trade

In the above circumstance there is all the less need for more drastic measures than we suggest.

*Answer to
Question 18*

The suggestion that the use of different coals for different purposes should be regulated presupposes that there are existing, or anticipated shortages of certain classes of coal. We do not agree that any shortage cannot be overcome by methods suggested in answer to question 16 and we consider such regulation is unnecessary. We are not aware that regulation of this type has been enforced to any very substantial extent even during war time, but we consider that if it were decided upon there would be no insuperable difficulty in its introduction in the present distribution system.

We would, however, oppose direction in the use of coal as it would constitute unjustifiable interference with the internal economy of those industries forced to use the type of coal not selected by them.

All the principal coals have been subjected to a "proximate analysis" and many to a "complete analysis". We however agree that if a complete regulation of the use of different coals for different purposes were to be introduced, it would be meaningless unless a "complete analysis" of all types of coal were carried out.

*Answer to
Question 19*

As already stated in our reply to question 18, we do not consider that regulation in the use of coals is necessary.

*Answer to
Question 20*

The despatch of the correct quality of coal has always been, and in our view must remain primarily the responsibility of the colliery. Disputes on this subject can be settled, as in the past, direct between seller and buyer.

*Answer to
Question 21*

Our suggested specifications for the various sizes of coal for the market are as follows :—

- (a) **RUN-OF-MINE.**—Coal of all sizes mixed, and unscreened as raised from the mine; subject only to the elimination of shale, stone and other impurities.
- (b) **STEAM COAL FOR SHIPMENT.**—Coal of a size larger than will pass through a 2" diameter round hole.
- (c) **STEAM COAL.**—Coal of a size larger than will pass through a 1" diameter round hole.
- (d) **RUBBLE.**—Rubble is double-screened and is mostly used for mechanically fixed boilers, gas producers etc. and the exact size required varies somewhat according to the specification of the plant, grates etc. Sizes range between—1/2" to 2" and for Simithy 3/8" to 3/4".

(e) **SLACK.**—The undersized product produced by screening steam coal, i.e., coal 1" to 0" or 2" to 0". (Slack coal is produced by screening either steam coal or shipment steam coal; hence the two sizes).

(f) **DUST.**—1/2" to 0".

TRANSPORT.

*Answer to
Question 22*

We understand the suggestion implied in this question is that collieries in each coalfield should be permitted to despatch coal only to consumers within the despatch zone allotted to their particular coalfield. We are not in favour of the permanent adoption in peacetime of a severe restrictive measure of this type, and we think that on grounds of quality alone it would probably be impracticable of operation. With modern boiler and combustion practice the tendency is more and more towards specialized plant, and there are therefore an increasing number of consumers who, owing to the nature of their plant, must be supplied with a particular grade or type of coal. Zonal distribution would, therefore, if the coal of the coalfield allotted to their zone were unsuitable, be disastrous to their working.

*Answer to
Question 23*

This suggestion is not clearly understood, but it is assumed that the intention is that the cost of coal should be the same in centres as wide apart as say Calcutta, Cawnpore, Lahore, Ahmedabad, Bombay and Madras. If this is so, it seems that if the Railways are to obtain the same revenue from coal as they are doing at present, the rail freight on short leads will have to be considerably increased in order that the rail freight on long leads may be reduced. This in our opinion would cause so considerable a dislocation of the present economic structure of the country as to put it quite outside practical policy.

If effect were to be given to the suggestion, complications would arise from the fact that there are several different coalfields to be considered and that the Railways have also to take into consideration the competition from seaborne coal, and the competition from alternative sources of power, such as fuel oil.

*Answer to
Question 24*

We do not accept the principle that there should be any variation in freights between different qualities of the same commodity. Any change proposed would presumably be in the direction of cheaper freights for higher ash coal to encourage its marketing, but this would be unsound economically as the higher the percentage of ash in the coal the less economic it is to transport.

We would make it clear however that in expressing this general opinion we do not refer to special freight arrangements now in force such as that governing rates on the G.I.P. Railway for coal from collieries in the Central Provinces

which were fixed by the Government of India on the recommendation of the Railway Rates Advisory Committee, after exhaustive enquiry in 1938, and which do not call for any change.

*Answer to
Question 25*

We do not think that the freight rate of coal should be influenced by the over-all operating costs, but that the primary consideration should be the cost of moving the coal on the railways, and the second any one, which will relate to coal for export and also coal in competition with seaborne coastwise coal and alternative sources of power, is the principle of what the traffic can bear. In this connection we would draw attention to para. 60 of the Majority Report of the Tariff Board in 1926 which says :—

“Coal is a commodity which in every country the railways must carry at a rate which is low as compared with the rates on almost all other commodities. The cost of fuel is vital to industries everywhere, and high rates on coal mean slower industrial progress and consequently, in the long run, less traffic for the railway itself. If ordinary coal rates cover the actual cost of transport, it is as much as a railway can hope for, and if they fail to do so, it is usually possible to make up the difference by higher rates on other commodities”.

*Answer to
Question 26*

We consider this is a matter for the Railways and consumers.

*Answer to
Question 27*

There are many bottle-necks on the Indian Railways system which interfere seriously with the free movement of coal. Instances are Waltair, Khandwa, Mokameh Ghat, Agra East Bank, Katni-Murwara and Ujjain. The limited movement of coal through these and other junctions, and the frequency with which despatches through them are restricted or wholly suspended is a serious matter for both coal producers and consumers, and should receive the serious attention of the Committee and of Government.

*Answer to
Question 28*

The service offered to collieries by the B.N. Rly. is generally better than that offered by the E. I. Rly. Wagons are almost invariably, in times of shortage, more freely available, short supplies are much less frequent and are always made good on the following day, and conditions are generally much better. We are inclined to the view that perhaps the ideal solution would be for the E.I.Rly. East of Naini and South East of Moghal Serai to be merged into a single system with the B.N.Rly. and for the E.I.Rly. above Moghal Serai to be detached from this system.

PRICE AND PROFITS.

Answer to

Question 29

(i) In our opinion free and excessive competition has been one of the great causes of instability and uneconomic conditions in the coal trade in the past and we consider that a system by which prices can be stabilised, as recommended in our reply to question 17, is an important prerequisite to stable and satisfactory conditions in the industry.

(ii) We think it should prove possible for a system as visualised in our answer to question 17 to succeed in stabilising prices.

(iii) The system of price control by Government now in force has on the whole proved quite satisfactory, and we have no objection in principle to Government having the power to control prices. We do not however think it necessary in normal times for Government to have this power. Our solution to the problem is as suggested in our reply to question 17.

(iv) In regard to the future coal requirements of the country and the proposed industrialisation we feel we should sound a note of warning against any belief that cheap coal will again be available in this country. Many of the items of colliery cost which have risen so sharply during the war can never be expected to fall again to pre-war levels ; perhaps the most significant is the labour cost ; the policy of both colliery owners and the Government of improving the amenities and standard of living of colliery labour—a policy which we heartily endorse together with the grant of free concessions to labour in respect of food, cloth, etc. has already brought about a substantial increase in labour cost, and further big steps are already being planned. Such measures must inevitably preclude any possibility of working costs being reduced to anywhere near the pre-war levels for even if free concessions to labour are eventually withdrawn their equivalent value in cash will then be disbursed.

Answer to

Question 30

In our view the system we suggest in reply to question 17 would have the automatic effect of stabilising the price of coal for all consumers and partial control in respect of certain consumers. It should be noted that there are an appreciable number of collieries which despatch none at all, or at most only a small percentage of their output to railways and Steel works.

Answer to

Question 31

(i) We do not consider that any price fixation by Government, beyond that recommended in reply to question 17, is necessary but if these suggestions are not accepted it would presumably have to be enforced by legislation empowering Government to notify prices from time to time. It is essential that in determining prices Government should be guided by an advisory body ; a body on similar lines to the present Coal Control Board, composed as it is of representatives of Government, consumers, producers and merchants would be satisfactory for the purpose.

We think that the Coal Commissioner's grading formula now in force has been tolerably successful and some similar system should be adopted rather than that prices should be linked to seams or individual coalfields. To make the scheme comprehensive it would become necessary to grade collieries in the C.P. and other fields.

The grading as defined under the Coal Grading Board is not, we consider, appropriate for prices for the internal market.

(ii) It is for consideration whether, to ensure stability both for producers and consumers, it would be advisable to make provision that once prices have been fixed they should not be altered during the year but should be subject to an annual review and should only be varied on account of fluctuations up or down under agreed heads, viz :—

- (a) alterations in labour rates ;
- (b) alterations in foodgrains or quantities of rations ;
- (c) alterations in stores rates ;
- (d) imposition of any additional cess or taxation.

We would also suggest that there should be no alteration if the total variation of (a) (b) (c) and (d) did not exceed 5% of the fixed prices.

Answer to
Question 32

(i) We consider that the differential in present controlled prices between high and low ash coal, which of course only apply to Bengal and Bihar, is not sufficient. Based on steam coal prices and the present price of Rs. 13/5/- for Selected A grade coal, we consider the prices should be as follows :—

Selected A	.	.	.	.	.	.	Rs. 13/5/-
Selected B	.	.	.	.	.	.	Rs. 12/5/-
Grade I	.	.	.	.	.	.	Rs. 11/5/-
Grade II	.	.	.	.	.	.	Rs. 10/5/-
Grade IIIA	.	.	.	.	.	.	Rs. 9/5/-
Grade IIIB	.	.	.	.	.	.	Rs. 8/5/-

In the event of any increase or decrease in price the same approximate percentage differential as against the Selected A price should be retained.

(ii) The differential as between steam coal and slack coal we consider satisfactory ; we are strongly of the opinion however that the price of rubble and smithy should be higher as both of these sizes of coal are more costly to produce and rubble in particular is of importance as it is required for gas producer plants, electric power stations and a number of other vital consumers. At present levels the price of rubble should be eight annas higher than steam coal.

Answer to
Question 33

(i) As far as possible it is desirable to fix prices by linking them to the different grades of coal but it is impossible to apply this uniformly throughout the country because consideration must be given to the many varying conditions of the industry in the country ; regard must be

had to working costs and other conditions in the mines, to the ability of the consumer to pay to price levels as compared with other fuels, and a number of other considerations.

(ii) We do not consider that it is possible to lay down a uniform level or percentage for the profit element. It must however be borne in mind that not only is a colliery a wasting asset but, also, that coal mining is a dangerous and uncertain business in which heavy and unforeseeable losses may occur at any time, and it is therefore not only reasonable but essential that a colliery owner should be allowed a greater margin of profit than, say, a mill owner whose assets are renewable. Subject to the foregoing, we feel the margin of profit should in no case be less than, say, 15/20% on the sale price f.o.r. colliery.

Answer to
Question 34

In considering this question a clear understanding is necessary of conditions in the trade. There are three main types of coal transaction ; first, direct sale by colliery owner to consumer without commission ; second, sale by colliery owner to consumer through the former's regular agent or broker, in which case commission is more often paid by seller than by buyer and is seldom very high ; third, outright purchase, often on a yearly basis, by a coal merchant, who re-sells to consumers, often at a substantial profit. It is this type of transaction which has—quite correctly in our opinion given rise to the impression that the margin or commission charged by the middleman has often been excessive. In justice to the middleman, however, a few points must be borne in mind ; he accepts the full *del credere* risk on the transaction he accepts the risk of a fall in the price of coal, and consequent loss, he is responsible for finding consumers and disposing of the whole quantity purchased ; having in times of depression often made little or no profit he has a *prima facie* case for charging a bigger margin when the trade can carry it. Such merchants have without doubt performed a useful service to the trade in times past, but it is our considered opinion that on the whole their profit has been somewhat excessive in relation to their services.

The amendment to the Colliery Control Order in October last, which laid down the following is we think, adequate :—

- (i) when a consumer bought through a *del credere* agent he should not pay more than Rs. 4/- per ton in the case of hard coke or Re. 1/8/- per ton in the case of coal or soft coke in excess of the f.o.r. price as brokerage and ;
- (ii) that if a producer employed a broker, a commission of not more than -/6/- per ton should be paid to the broker by the producer ;
- (iii) that, if the producer and consumer mutually agreed to a direct sale, no addition should be made to the f.o.r. price which had been fixed for that coal.

TAXATION.

*Answer to
Question 35*

We consider that the coal industry suffers from unduly heavy and multiple cesses and taxation, the three main aspects of which are :—

- (a) insufficient depreciation to meet the present high costs of plant, machinery, buildings and development ;
- (b) the assessment particularly in Bengal of road cess based on profits ;
- (c) the lack of depreciation on mining rights.

Re : (a)—The question of depreciation of current capital expenditure has already been covered by the answer to question 12.

Re : (b)—The multiple cesses are fully dealt with in answer to question 73, but as it impinges somewhat on this question, special mention must be made here of the Road Cess which has an effect on profits.

The Road Cess is administered both in Bengal and Bihar under Acts which have really become obsolete.

Calculated on the average for the previous three years, Road Cess is payable in Bengal at one anna in the rupee on profits and in Bihar at one anna per rupee on profits plus a cess on despatches. The hardship of calculating this tax on profits, at times when profits are falling, is obvious.

It may, of course, be argued that the industry gains when profits are rising. This cannot be denied but it merely serves to emphasize the ineptness of a tax which so works that when profits are rising the rate of tax is lower than when profits are falling.

The fact that the cess is not allowed as a charge against profits for the purpose of calculating Income Tax is an additional hardship.

The assessment on profits of companies varies from one district to another and is carried out in a most arbitrary fashion.

There is a definite anomaly and as the cess is for the improvement of roads it should be borne equitably by all and there is a strong case for the Act to be amended to allow the collection of cess on despatches instead of on profits. This would simplify calculations, lessen the possibility of evasions and allow for an assured income.

Re : (c) —A very large proportion of the industry capital expenditure is represented by the cost of purchasing mineral rights. The cost of these mineral rights has been steadily rising until now a stage has been reached whereby a large proportion of a Company's capital is represented by a wasting asset the decrease in which is not allowed as a charge against profits for taxation purposes. The Committee are strongly of the opinion that until provision is made for amortization of mineral rights as a charge against profits for taxation purposes this factor represents a very real influence against the efficient development of Indian coalfields.

It is well-known that India's shallow coal seams are becoming exhausted and that it is becoming increasingly necessary to work the deeper seams. This of course means that the cost of extracting coal will increase progressively and unless provision is made now to meet the contingency there is a very real possibility that Companies will not possess the funds to work these deep seams or that the cost of working these seams will be uneconomic.

If this is to be prevented the coal industry must now be provided with the means of setting a side funds for the development and working of these deeper seams when the time comes. There are several ways in which this can be done but the Committee consider the most satisfactory would be the granting of a special rate of depreciation, say, 5% on the mineral rights.

The Committee consider that steps on the lines of the foregoing would go a long way to meet the present alarming practice to work shallow seams without thought to the necessity of providing for the working of deeper seams when all shallow seams are exhausted.

NATIONAL AND INTERNATIONAL COMMERCIAL POLICIES.

*Answer to
Question 36*

The commonest markets for Indian coal are Burma, Ceylon, Malaya, the Philippines and China ; shipments have also been made of fairly large tonnages in times of world scarcity to Egypt, the Middle East and the Mediterranean. Any steps that can be taken through international agreements to guarantee a regular offtake of Indian coal in these markets would be welcome.

*Answer to
Question 37*

(i) The implementing by India of international labour conventions has resulted in appreciable increases in production costs, but such action has certainly been of some benefit in improving labour conditions.

(ii) There is a proposal before the International Labour Organization that a mine-worker's charter should be drawn up. We should like to stress two important aspects of this matter :—

(a) in considering the application to India of international labour conventions there should always be borne in mind the wide difference in character between Indian and western labour and the great difference in conditions as a result of which measures which are both desirable and necessary in Western countries may often be singularly inappropriate to India.

(b) We consider it most desirable, and in fact an essential prerequisite of successful operation, that the industry should be fully consulted before any measure is adopted in this country both as to the desirability of the measure itself and to the best means of its implementation. There have been instances in recent years when legislation affecting

labour has been introduced either without reference to the industry or if reference has been made to the industry the relative measures have been promulgated before the industry's views have been expressed. We are, as stated elsewhere, strong advocates of the amelioration of conditions of colliery labour, but we are emphatic that the introduction of legislation on preconceived lines without reference to the industry may be most harmful and certainly does not engender a spirit of co-operation between the industry and Government.

III

CONSERVATION OF HIGH GRADE METALLURGICAL COAL

Answer to

Question 38

We define metallurgical coal as that coal which can, either by itself, or by washing or by blending with other coals, be used for the manufacture of metallurgical coke. By far the largest deposits of metallurgical coal in this country are in the Jharia coalfield; there are also substantial deposits in the Bokaro, Ramnugger/Laikdih and Giridih coalfields, though, we believe the last-named are nearing exhaustion. There are also certain seams of semi-coking coal in the Karanpura coalfield.

We should like to draw attention to the fact that as far as the Jharia coalfield is concerned only seams 12 to 18 have in the past been popularly regarded as metallurgical coals, and the lower seams have been largely ignored. It is however important to realise that *all* seams in the Jharia coalfield are coking, and what is required to enable these higher ash coals to be used in the manufacture of metallurgical coke, even if to a limited extent, is either washing or blending with other coals.

Answer to

Question 39

The Association has submitted no reply to this question as it is intended for iron and steel companies and other metallurgical works only.

Answer to

Question 40

The Association has submitted no reply to this question as it is intended for iron and steel companies and other metallurgical works only.

Answer to

Question 41

The Association has submitted no reply to this question as it is intended for iron and steel companies and other metallurgical works only.

Answer to

Question 42

The Association has submitted no reply to this question as it is intended for iron and steel companies and other metallurgical works only.

Answer to

Question 43

(i) There cannot be any reduction in the overall requirements of metallurgical coal through blending or washing, but the adoption of these processes would, however, result in a substantial increase in the range of coals which could suitably be used for metallurgical purposes. For instance, semi-coking coals could be blended in certain proportions with fully coking coals to produce metallurgical coke; similarly certain coking coals of high ash content which have for this reason not hitherto been acceptable to Steel Works could be treated by washing to produce the quality satisfactory for metallurgical purposes.

(ii) Already for some years past in India there have been certain coke plants that have used a percentage of high ash coal and still produced good metallurgical coke without possessing any scientific blending plant or mixing apparatus. A number of washing tests on Indian coals have been carried out in the U.K. but in the past the cost of a washing plant was so high and the selling price of coal so low that it was uneconomic to instal such a plant. Now, however, the matter is again under active consideration.

(iii) We would again stress that the process of washing or blending will not enable the Steel Industry to use less coal, but the importance of such treatments is that they will enable coal to be used which otherwise could not be used, thereby affecting a reduction in the rate of consumption of the higher quality metallurgical coals. We think this reduction could well reach as high as 25%.

That unsuitable coals which could be made available is evident from the tabulated data given below:—

This was extracted from an article in an Australian paper and gives a general indication of the results obtained on a washing plant which has been treating a number of district collieries in Newcastle, N.S.W.

BARVOYS WET WASHER.

Colliery.	Average Ash Content.		Refuse Percentage.
	Raw Coal Percentage.	Clean Coal Percentage.	
A . . .	18.5 Ash	12.4 Ash	67 Ash
B . . .	20 "	14.2 "	72 "
C . . .	14 "	12.7 "	76 "
D . . .	12.4 "	8.4 "	63 "
E . . .	11.9 "	8.5 "	65 "

DRY CLEANER

Feed.	Clean Coal	Refuse
14.3% Ash	11.4% Ash.	62.0% Ash.

"...The effect of discarding the refuse does not materially alter the operation of coking but becomes most manifest in the blast furnaces. The lower ash content of the coke eliminates the need for "slagging" this inert material with a corresponding reduction of limestone and coke needed for this operation. The overall effect is a reduction of limestone and coke in the furnace burden and an increase in the productive capacity of the furnace.....".

We also give below examples of tests on an Indian coal by a gravity washer:—

Raw Coal	Clean Coal	
Ash %	Recovery %	Ash %
17.00	77.4	13.75
15.36	85.4	12.2

We consider that the problem still needs considerable investigation in regard to use on Indian coals, as for instance, central washing plants are not normally practicable since coals of different physical characteristics cannot be satisfactorily washed together. They would have to be blended in constant proportions which would entail enormous handling plants and bunkers.

The present freight system of minimum rates inside a 50 mile radius would have to be amended if coal washeries are to be encouraged.

In this connection please also refer to our answer to question 35 in Questionnaire I.

*Answer to
Question 44*

We consider the present utilization of coal by the iron and steel works could probably be described as efficient and economic if regard be had only to the immediate economics of the Steel trade, seeing that for many years they have been able to buy the best coal at cheap prices. They have, however, in the past shown themselves most conservative in the matter of their coal supplies and unwilling either to experiment with different coals or to accept a percentage of high ash coal for blending with better coals. We consider it would be beneficial if an independent investigation were made of the coal consumption of these works, particularly with a view to determining the extent and the manner in which higher ash or inferior quality coke could be used in blast furnaces.

We feel sure that higher ash coals (10 & 11 Seams at least) could be used by the iron & steel plants in greater quantities than they carbonise at present. The policy of the iron & Steel interests in India has been to obtain the largest quantities of the superior grades of coking coals and to neglect the lower grades of these coals. It might be mentioned that the European practice is to use a mixture of poor, middle and superior coals, provided they will produce a metallurgical coke with a suitable Caking Index. In this connection the quality of the iron ore and the flux used in the Blast Furnace must be taken into account. During the war the Coal Companies' Coke Plants have been compelled to carbonise a greater proportion of higher ash coals than was formerly their practice with the result that the ash content in the Coke has risen to 24 to 25% as against their 20 to 21% pre-war. We have reason to believe that coke with an ash content of 28 to 30% could be used satisfactorily in the blast furnaces in India. The Iron & Steel Companies have, we understand, all the data available from European sources.

*Answer to
Question 45*

In our opinion the shortage of metallurgical coal in India has been seriously exaggerated; statements have been made by eminent persons, including geologists, which have led to a demand for the conservation of coking coal by persons who have accepted these statements at their face value without having the opportunity or data on which to check the figures. We think

that if the figures submitted to the Committee by colliery owners are carefully computed, if the Steel Works themselves are prepared to play their part by using a percentage of higher ash and semi-coking coals there will be found to be ample reserves. Therefore we are of the opinion that there should be no need for imposing any restriction on the production of metallurgical coal now, but we agree that, if on thorough enquiry, a shortage should be found to exist, such restriction will be inevitable.

*Answer to
Question 46*

We do not consider that the projected expansion of the Steel Industry necessitates any immediate restriction on the use of metallurgical coal. The present production of such coal is much in excess of the Steel Works' requirements, which we estimate roughly at 2½ million tons per annum, and as and when those requirements increase, as we have said above, further supplies of metallurgical coal will become available and should this not be the case it would be necessary for additional sources of non-metallurgical coal to be tapped for the benefit of other industrial consumers. No difficulty is anticipated in meeting the needs of those consumers from other fields.

We agree that the Steel Industry should have prior claim on the available metallurgical coal but, in considering this question of conservation, there are two important points which must be kept in mind :—

- (a) Unless the industrial activity of India is to be very seriously handicapped, the conservation of coking coal by means of reduced raisings in the Jharia field cannot be introduced until such time as alternative supplies are available from other coalfields. Apart from the possibility of increasing raisings from certain sections of the Raniganj field the only areas from which such increased alternative supplies can be obtained are the Karanpura and Central India coal fields.
- (b) In addition to the Steel Industry certain other consumers have priority claims for low volatile coking coal, viz., the coke oven industry in the coalfields, electric power supply undertakings in the coalfields (for whom it would not be economic to supply coal from other fields), the fertilizer plant at Sindri, and so on.

*Answer to
Question 47*

(i) On the assumption that restriction of coking coal is necessary it is to be presumed that such restriction would be enforced firstly in the interest of the Steel Works themselves and secondly in the wider national interest. It follows therefore that the first burden of the restriction should be borne by the two beneficiaries of the scheme, viz., the Steel Works and the nation; that is to say the first collieries to be closed or restricted should

be the many collieries owned by the Steel Works producing metallurgical coal and the second should be the Government owned collieries. The Steel Works would perhaps argue that they need a proportion of their own coal for sure and good quality deliveries, as well as for blending, but this is in itself an argument in favour of the investigation of their coal consumption to which reference has already been made under question 44. As regards the Government collieries, Giridih produces some of the finest coking coal in India though we believe it has a limited life remaining; slack from the State Railways Bokaro colliery has been extensively used by the Steel Works for a number of years, and this is an ideal property to restrict as the coal is all quarried; maintenance and pumping would therefore be at a minimum and the mining difficulties referred to in question 48 would not arise.

(ii) Restriction would presumably have to be enforced by legislation. The yearly despatchable outputs of the coalfields from which metallurgical coal is principally mined are believed to be at the present time approximately as follows :—

Jharia	9,000,000 tons
Bokaro	2,000,000 tons
Giridih	500,000 tons
Ramnugger/Laikdih	500,000 tons
Total	12,000,000 tons

Allowing some deduction for inferior coal being produced, the output of usable metallurgical coal from these fields may perhaps be taken to be of the order of 8 or 9 million tons per annum. Assuming the Steel Works present requirements of metallurgical coal as 2½ million tons per annum (vide Q. 46) and allowing another 600,000 tons for Coke Ovens, it will be seen that the complete restriction of the use of this coal to coke making would necessitate a reduction of nearly 60% in the output of these fields, or a loss of output of 5/6,000,000 tons yearly. From these figures two implications follow, first the lack of alternative sources of supply which can be drawn upon immediately to meet the needs of other industrial consumers who would be deprived of metallurgical coal, and second the economic effect on the collieries who are forced to reduce production. Therefore we consider that restriction is not practicable in the case of developed collieries.

*Answer to
Question 48*

Assuming acceptance of the principle that restriction can best be achieved by closing certain collieries, it is necessary to examine the effect of such closure on the collieries in question. It must be emphasized in the first place that there will be a number of collieries where the stability of the existing working, nearness to fire areas, water troubles etc. will make it impossible to close such collieries completely with any hope of ultimately re-opening them before they are lost owing to flood, fire, collapse or other causes. There will be other collieries where, even if coal raising is stopped, pumping will have to be maintained to prevent irretrievable flooding or sand-stowing will have to be continued to ensure stability. Even if it is possible to abandon any colliery temporarily and permit it to flood wholly or partially there will be constant unremunerative

expenditure on watch and ward, statutory (and very necessary) inspections, minimum royalty and so on. It will be seen that any restriction scheme on the scale envisaged would be most costly.

It should be clear from the figures already quoted, and we wish again to emphasize, that any proposal to reduce raisings of metallurgical coal in the Jharia field to day to the level of the current consumption of the Steel Industry would, apart from its effects on the other consumers of coking coal, virtually bring the Jharia coal-field to a stand-still. Apart from the technical difficulties already indicated, regard must also be had to the commercial view point; the closing down of collieries or the compulsory restriction of raisings would lead to enormous financial loss for which Government would be held liable; a serious unemployment, or at best resettlement, problem would arise owing to the retrenchment of staff and labour; and lastly there would be extremely serious effects on institutions such as the Railways, the Mines Board of Health, the Water Board and so on. All these matters would require the closest and most careful investigation in consultation with the Industry before any conservation scheme could be undertaken.

*Answer to
Question 49*

It would not, in our opinion, be desirable for the State to own or to own and operate all metallurgical coal. We have given, in our reply to question 10, our reasons for opposing the proposal to nationalize the coal industry, and our remarks apply as equally to metallurgical coal as to any other type of coal.

IV CONSERVATION OF HIGH GRADE STEAM COAL.

*Answer to
Question 50*

It is difficult to give any hard and fast definition of high grade steam coal, but this expression may perhaps be taken to include all coal of such quality as to qualify for Grade I or better. The main deposits of such coal are in the Jharia, Raniganj, Bokaro, Karanpura, Giridih, Central India and Pench Valley coalfields.

(N.B.—The term "steam" coal in normal commercial parlance in the trade refers only to lumpy coal of 1' cube and above. We have assumed however that the question refers to coal used for steam raising as opposed, say, to coke-making, rather than to the actual size of the coal marketed).

*Answer to
Question 51*

The question of whether or not high grade steam coal has been wastefully used can only be determined in the light of the available reserves and the economics of the consumer industry. In our opinion the reserves are so enormous that the allegation of wasteful use cannot be supported. The difference in price between low and high ash coal has been the factor which has ensured that the great majority of consumers have used the grade of coal most economically suited to their needs.

*Answer to
Question 52*

We do not consider that any case exists for restricting the use of high grade steam coal.

*Answer to
Question 53*

We do not consider that any case exists for the State ownership or operation of high grade steam coal. Please see also our reply to question 10.

V

CONSERVATION GENERALLY

*Answer to
Question 54*

As we do not have in our possession information covering the whole Industry it is somewhat difficult for us to generalize on this subject. We do however, on the whole consider that there has been an improvement in recent years for the following reasons :—

- (a) A big increase has taken place latterly in the amount of stowing undertaken, and whether for 100% replacement or for partial stowing this has unquestionably increased materially the percentage of recovery.
- (b) The rules under the Mines Act laying down the minimum size for pillars and maximum size for galleries has greatly increased stability and lessened losses through collapse.
- (c) The technique of staff and labour in pillar cutting has improved.
- (d) Universal adoption of safeguards to control heating in the goaf, e.g. provision of fire stoppings, panel barriers etc.

*Answer to
Question 55*

We consider that on the whole the regulations are satisfactory for the purpose and have only one suggestion to make :—

- (a) The depillaring of thick seams which are known to have a spontaneous heating incubation period of six months or less at shallow depths should be prohibited unless complete replacement by stowing is practised.

*Answer to
Question 56*

This is of course a desirable object and the only solution is sand-stowing which must be gradual. In the meantime any such drastic enforcement of rotational working would have disastrous results on production in present workings, a consequent overall loss in output and serious financial effects on individual companies.

*Answer to
Question 57*

We have already expressed our views on conservation in our letter dated 17th January to the Indian Coalfields Committee and for convenience these views are recapitulated hereunder:

No owner of Grade I coal and above (Grading Board's specification) should be permitted to work their coal in such a manner

that the seam has to be abandoned before maximum abstraction is accomplished.

If sand stowing is necessary to avoid this (and the authority should be the Stowing Board on the recommendation of the Chief Inspector of Mines) it should be made compulsory and Government should assist.

In the event of stowing being uneconomic the Chief Inspector of Mines may give exemption.

Sand stowing to apply only to coal occurring in seams of 5 ft. and above (except where Proprietors desire to make their own arrangements). Stowing wherever necessary for safety should be compulsory in respect of all coal mined, unless the Statutory Authority decides otherwise.

Stowing should be State aided at 75% cost of the total cost. The Act should be amended to allow sufficient income to cover the 75% cost.

Delivery of sand should be undertaken by the Stowing Board though such concerns who already have facilities for obtaining the sand might be allowed to continue with them and receive their cost for this operation from the Stowing Board.

Those Coal Companies who already have Ropeway installations, etc. should be reimbursed in some way for the capital expenditure.

*Answer to
Question 58*

We do not consider that where satisfactory arrangements already exist or are under planning for the delivery of sand to collieries any advantage would be secured by the taking over of these arrangements by Government. We do, however, think that stowing is such an important matter, that Government should accept responsibility for the delivery of sand to those collieries which are unwilling for good reasons (e.g. lack of funds) or unable to arrange their own deliveries but, in that case as stipulated above, those companies which already have ropeway installations, etc. should be reimbursed for the capital expenditure. We do not think it is necessary for Government to acquire sand rights where these have already been acquired for stowing, provided sand is made available to all by the holders at a reasonable royalty. If Government were to take over both sand rights and the delivery of sand this would cut across a number of existing arrangements which we maintain are working satisfactorily. A number of members of this Association have sand rights in various areas, as well as ropeways, scrapers, drag lines, tramlines and other arrangements for the supply of sand to their collieries; if any attempt were made to take these over we are convinced that considerable confusion would result, efficiency and output would drop, costs would rise and operations

would probably be seriously interfered with. Sand stowing has largely been developed as a result of private enterprise, and until it is proved that its operation is inefficient or detrimental to the public interests we consider that no case has been made out for its compulsory taking over by Government.

*Answer to
Question 59*

We do not consider it reasonable that lessors should be called upon to share in the cost of stowing. By the time they have paid administrative expenses, cesses and taxes there is very little in hand, whether the landlord be an individual or a company. We therefore feel this extra burden would be inequitable, even though it must be admitted that the lessor also benefits if stowing is undertaken.

*Answer to
Question 60*

A very considerable amount of coal is locked up under the G.T. Road, Railway Lines, Sidings etc. Cases can be cited where it has been impossible to obtain permission to extract the coal from under the G.T. Road even at great depth and accompanied by solid stowing. There appears no reason why at depth coal should not be extracted even without stowing under the G.T. Road, Railway Sidings, etc. ; and if at shallow depth, with 100% sand stowing, seams could be extracted without disturbing the surface.

We would like to emphasize in this connection the necessity of sand stowing at shallow depth which is, in our opinion, the solution of the whole problem.

*Answer to
Question 61*

(a) It may possibly be that economy and efficiency in coal consumption are increased by the use of pulverised coal but experience shows that this is not an economic way of making use of inferior coal.

(b) Colloidal fuel has met with such little applied success in Great Britain that it is not even mentioned in the latest publications of the Ministry of Fuel and Power. In our opinion the reserves of cheap fuel in the country are so great as to render any action in this direction unnecessary.

*Answer to
Question 62*

We feel that this is a question of economics, the pros and cons of which can only be considered in conjunction with technical experts.

*Answer to
Question 63*

(i) We agree that the present method of soft coke production is primitive and results in wastage of all the bye-products ; on the other hand the great majority of soft coke is made from either rejections or very low grade coal, so the wastage is not such an important item as might appear at first sight, and the yield of bye-products which might be recovered would be very low and uneconomical.

(ii) It is significant that very few low temperature carbonisation projects in the U.K. have succeeded and the leading exception can only operate on a small margin of profit on the best Durham coal. In this connection it may be borne in mind that in the high temperature coking in the better grade Indian coals, the yields of Tar and bye-products generally do not exceed 50% of the corresponding yields obtained with English, American and Continental Coals. The Government of Bihar recently allotted a sum of money to research on low temperature carbonisation. No report has been published on the work done but it is understood that results, as far as they went, were discouraging. The value of bye-products recovered thereby would be quite insufficient to offset the much higher cost of the solid fuel produced. As regards the production of Hard Coke in Beehive Ovens, however, the case is different and a potential loss of bye-products, economically recoverable is undoubtedly involved.

*Answer to
Question 64*

Coal tar is a bye-product of the coking of coal and development of a coal tar distillation industry can only take place in the event of a corresponding development in coke production, which again is closely linked with development of the Steel Industries and other industries (e.g. Sulphate of Ammonia) utilising large quantities of coke.

Coal tar represents a yield of not more than 5% on the coal coking process and can only therefore be regarded economically as a bye-product.

A well organised Coal Tar Distillation industry has existed in India for some years and long term agreements between producers and distillers have been in force whereby the major proportion of crude tar produced is made available for distillation and refining.

Thus in 1941/42 it is estimated that 80,750 tons of crude tar were produced and 61,700 tons were distilled.

The main products of distillation of Indian Coal Tar are :—

1. Road Tars
2. Coal Tar Pitch
3. Creosote Oil
4. Naphthalene
5. Tar Acids—Phenol, Cresols, etc.
6. Coal Tar Disinfectants
7. Coal Tar Paints

There is a common misapprehension that Benzene, Toluene and Xylene are produced from coal tar but in India these can be produced only from the Coke Oven Gases after removal of the coal tar. Their production does not form part of the coal tar distillation process proper although they are often referred to as coal tar products. These products are extracted in Recovery Units at Jamshedpur, Hirapur, and on a smaller scale at Kusunda and Giridih.

The presence of a coal tar distillation industry can in no way substitute for the lack of natural gases and insufficiency of petroleum, as their relative products have no appreciable field of application in common and it is not clear what has prompted this reference to natural gases and petroleum.

These latter are primarily a source of oils for combustion engines and natural gases and today are fractionated into individual compounds e.g. butane and propane, which can be employed as "bottled" gas or in the production of "Synthetics" (e.g. Synthetic rubberplastics, etc.).

There is certainly a good case for developing Benzole extraction from Coke Oven Gas to a maximum as the products can be used as a motor engine fuel or in synthetic chemical manufacture (chiefly for dyes, drugs, pharmaceuticals, etc.), for which a demand is certain to develop in the future but, generally speaking, such uses are supplementary to, rather than in replacement of, those of petroleum products. In this connection please see our answer to question 37 of the first Questionnaire.

VI

MINING LEASES AND FRAGMENTATION

*Answer to
Question 65*

We are not in a position to give this information. Individual members will doubtless be able to supply it.

*Answer to
Question 66*

In the case of leases which do not contain specific provision for the rights of instroke and outstroke working, the position is as follows :—

- (a) **INSTROKE RIGHTS**—Recent legal opinion is to the effect that the right of instroke working is inherent in any lease document and that this need not be specifically granted. There have been several cases of the above nature and as a result the question of whether or not instroke rights are granted under lease documents is of relatively little importance.
- (b) **OUTSTROKE RIGHTS**—In the event of outstroke rights not being granted under the lease documents, it is necessary to approach the lessor. In normal cases if the lessor is amenable and reasonable in his attitude, permission for outstroke working can be obtained for a lump sum payment or for a small royalty per ton. There have however been cases in which a lessor for personal or other reasons has refused to grant outstroke rights and as a result areas which should have been worked from existing shafts have either been left unworked or it has been found necessary to sink separate shafts to serve the areas in question.

*Answer to
Question 67*

We have perused the standard publications on this subject and have the following comments

to make :—

- (a) The period of 30 years maximum for mining leases with the option of renewal for a further 30 years is entirely inadequate. A normal mining lease is for 999 years and few Colliery Companies will be prepared to embark on the very heavy capital expenditure involved in equipping a colliery according to modern practice if their guaranteed tenure of the area was limited to an absolute maximum of 60 years. The inevitable result of the imposition of a short lease of this nature must be to encourage lessees to extract the most easily won coal leaving the rest of the property in a state in which the balance coal can only be extracted at great expenses and in some cases danger to the property and the miners.
- (b) The prospecting period of 2 years with a right granted to the Collector to renew for a further period up to a maximum of 3 years is entirely inadequate. Some of our members have had expert Geological staffs at work on prospecting for the last 25 years and this work has not yet been completed. It may be possible within a period of three years to obtain a rough idea of the position and quality of the coal seams in any area but prospecting in any detail is a slow and tedious job which can only be undertaken in an efficient manner on a long term basis.

*Answer to
Question 68*

We do not consider the Government can suitably regulate the rates of salami or royalty. These must of necessity vary according to a number of factors such as :—

- (a) the quality of coal,
- (b) the condition of the coal market,
- (c) the position of the colliery in relation to the railway facilities,
- (d) whether or not a virgin property has been fully prospected by the lessor,
- (e) quantity of coal, number and thickness of seams, etc. etc.

If Government were to fix standard rates or royalties it would introduce an inflexible system which would result in some parties paying higher rates than were justified in the circumstances and others paying less than that which could be equitably demanded.

The abolition of salami would be most strenuously resisted by all parties concerned as this is a payment generally accepted throughout the Mineral Industry if abolished it would require to be substituted by higher rates of royalty which would be unacceptable to lessor and lessee alike.

*Answer to
Question 69*

In our opinion an uneconomic colliery holding is a colliery which after taking all factors into

account is by reason of its size unable to work in an efficient manner. Few areas of under 200 bighas can be regarded as economic and areas of 200 bighas and more are themselves uneconomic if they are fragments of a larger area which could be worked as one and thus avoid locking up of coal in unnecessary barriers.

We are unable to provide figures showing details of uneconomic holdings but during the last few years there has been a great increase in the number of small collieries, some working areas as small as 10 bighas.

In some cases leases of small areas have been granted direct but as far as we are aware the majority of these holdings have occurred through subdivision of larger plots by intermediate royalty owners.

The main factors responsible for the fragmentation of holdings are as follows :—

- (a) The small individual colliery owner is not able to afford to pay salami on large areas.
- (b) A tenant having paid salami on an area of reasonable size seeks to recover a certain percentage of his expenditure by fragmentation, retaining a proportion of the area to be worked by himself.
- (c) The small Colliery owner cannot afford equipment and mechanical appliances and is only interested in plots near the outcrop which can be easily worked and does not wish to take on lease large areas which involve extensive pumping, installation of haulages, etc.
- (d) In recent years when coal prices have been satisfactory there has been a great incentive to small owners to take any area however small preferably of quarry coal and extract a few hundred tons per month.

*Answer to
Question 70*

We consider the existence of uneconomic holdings undesirable in the national interest for the following reasons :—

- (a) The heavy losses of coal in the multiplicity of barriers.
- (b) The limited finance of the owners means they cannot afford the latest machinery and in times of depression they are compelled to cut their prices, or even go out of business. This leads to cut-throat competition and besides having an unstabilizing effect on the price structure throughout the industry, means a loss of output to the country and also the danger of a permanent loss of coal.

The above criticisms should not be regarded as an indication that we feel the small colliery owner has no place in the industry. Given suitable legislation regarding fragmentation and given suitable prices there is no reason why small owners should not form a useful section of the industry.

*Answer to
Question 71*

We consider that Legislation should be introduced which while not interfering with royalties and salami payable under mining leases does to some extent control the provisions of lease regarding such matters as subdivision, etc. We are of the opinion that the present system under which sanction is required from the Coal Commissioner's office before opening a colliery should be continued even if the present powers exercised by the Coal Commissioner's office are transferred to another body. As indicated in answers to other sections of this questionnaire we are not in favour of State ownership of mineral rights. We would prefer the appointment of a special officer to negotiate between landlords and tenants or a simple amendment to Regulations under the Mines Act but would point out that the difficulties involved in fragmentation are not only between landlords and tenants but in some cases between tenants and other tenants. We feel however that by the appointment of a special officer to assist in negotiations together with powers in certain instances to compel amalgamation that the majority of the problems involved in undue fragmentation can be settled to mutual advantage of all parties concerned.

VII

OPENING OF NEW COALFIELDS

*Answer to
Question 72*

We are aware that there is a vast quantity of coal reserves in coalfields which are so far only partially developed. These include the Karanpura coalfields, the Bokaro coalfields and also those of the Central Provinces. A lot of prospecting work in these fields has been completed and is still being carried out. Some new collieries have opened up and there are further development schemes in hand.

VIII

ADMINISTRATIVE MEASURES

*Answer to
Question 73*

Before answering this question we are tabulating and commenting on the duties and cesses which are imposed by the Central Government as well as those collected by the Local authorities.

The Central imposts at present are :—

- (a) 20% Surcharge on railway freight.
- (b) Re. $\frac{1}{2}$ per ton Excise Duty (Coal Mines Rescue Stations).
- (c) Re. 0/2/0 per ton Stowing Duty.
- (d) Re. 0/4/0 per ton Labour Welfare Fund.
- (e) Rs. 1/4/0 per ton Coal Production Fund.

There is also a Mines Maternity Benefit Act and a proposal for a cess to meet medical facilities for mine workers.

With regard to :—

- (a) The question of freight rates has been dealt with elsewhere in replies to this questionnaire ;

(b) is reasonable ;

(c) If our recommendations under question 57 are to be implemented, it will be necessary to amend the act to allow sufficient income to cover State aid towards the cost of sand stowing for conservation.

(d) This is a recent impost and accumulates approximately Rs. 60 lacs a year. It is suggested that this cess should be responsible for much of the welfare work which is now being undertaken by individual collieries, but which is not being done in uniform measure.

(e) This cess is collected for the provision of bonuses to collieries who accomplish their production target as well as for the cost of Gora-

khpur labour and the Coal Commissioner's Organization. The production bonus only operates up to 31st March 1946 and the question of reducing the cess should therefore be investigated.

These imposts are collected as a surcharge on Railway freight and it is undoubtedly the simplest method and one which is almost impossible to evade ; but, in appreciating that the collection throws extra work on the Railway Authorities for which they should be compensated, we do not consider that the Railways should be allowed to collect more than the actual expenditure plus a small profit. In some cases the percentage fixed for collection by the Railways gives the administration a substantial income from cesses which are primarily designed for amenities and welfare in the coal-fields area.

The local cesses are :—

Bihar (Cesses).

Rs. 4/- per 100 tons on raisings (1946-47)	Jharia Mines Board of Health
Re. 0/0/8 per ton on raisings	Jharia Water Board
Re. 0/1/0 per Re. 1/- on profits plus Re. 0/0/5 per ton on despatches.	Road Cess

BENGAL (Cesses).

Rs. 2/4/- per 100 tons on raisings plus 24% of the Road Cess payable by Royalty Receivers	Asansol Mines Board of Health.
Re. 0/1/0 per Re. 1/- on profits	Road Cess.

We have already commented on the Road Cess in reply to question 35. The trade has unavailingly protested against the increase to the cess levied by the Jharia Mines Board of Health. In 1941/42 it was Rs. 1/8/0 per 100 tons, in subsequent years Rs. 3/- and is now Rs. 4/-.

of Health, the Jharia Water Board, etc., should if possible be absorbed into the Coal Mines Welfare Fund organisation.

APPENDIX "A"

(REFERENCE QUESTION 6)

As an illustration of their policy mentioned in reply to Question 6 we undernote the average price paid by the Railway Board for market coal f.o.r. colliery for the 10 years 1929/30 to 1938/39 inclusive :—

	Rs.	As.	P.
1929-30	3	15	0
1930-31	4	8	0
1931-32	4	8	0
1932-33	4	0	0
1933-34	3	9	0
1934-35	3	4	0
1935-36	3	1	0
1936-37	2	13	10
1937-38	2	14	9
1938-39	4	6	0

Owing to the fact that some are Central Cesses and others local we have no suggestions to make for an alternative or more suitable administrative arrangement for their collection.

*Answer to
Question 74*

We are of the opinion that because the function differ for each of those Committees, it would not be practicable to have a single body, but we consider that the various Committees and Boards should function under a set-up we have visualized in our answers to questions 1 and 2.

*Answer to
Question 75*

It is our opinion that the utility and health services in the coalfields should be under one organisation and that such Boards as the Asansol Mines Board of Health, the Jharia Mines Board

We would emphasize that these are the average prices paid, not the lowest, and included in the average is a portion of the highest grade coal mined in India.

Oral evidence of Messrs. F. W. A. Carpenter, D. F. Macmillan and J. P. Evans representing the Indian Mining Association recorded at Calcutta on the 17th June, 1946.

Question.—What is the position which the Indian Mining Association occupies in the Coal Industry ?

Answer.—We represent roughly 60 per cent of the total output of coal in British India.

Question.—Is it a fact that there is an overlapping of membership between your Association and the two other associations?

Answer.—Some of the members of the I.C. O.A. and I.M.F. are also members of the Indian Mining Association.

Question.—Q. 1. The subjects mentioned in Questionnaire I are broadly Safety, Conservation and Administrative Measures. May I infer from your answer that no action is needed under the third head, i.e., Administrative Measures, which includes control of leases ? And that the Indian Mining Association are opposed generally to one authority dealing with all these three matters ?

Answer.—Yes, that is really what we intend.

Question.—What are the subjects in which little or no progress has been made since 1937 or in which, apart from stowing, the position still remains unsatisfactory ?

Answer.—There is the question of fragmentation ; that has definitely taken a turn for the worse.

Question.—Would you consider that fragmentation is part and parcel of the broader question of control of leases ?

Answer.—Yes.

Question.—Are you quite satisfied with the progress of fuel research, in this country ?

Answer.—Generally speaking, very little research has been done on a large scale.

Question.—If the question of export coal were left to the free judgment of the individual shippers or operators of the coal industry, what would be the reasonable tonnage that may be sent out of the country ?

Answer.—I should think about 3 million tons.

Question.—Would you need any extra inducements or could you do without the present concessions on export coal?

Answer.—Times are not normal now and possibly we would not require any inducement now. But we have to consider normal conditions ; we have to look forward to the day when there will be competition.

Question.—What type of coal would you consider suitable for export ?

Answer.—The best,

Question.—What type is suitable for bunkering?

Answer.—Naturally one prefers Selected 'A' and 'B' grade coal.

Question.—Do you think there is any market for what is euphemistically called lower grade coal ?

Answer.—Well, not as long as better coal is available.

Question.—If a decision is taken that the better grade coals should not be exported out of the country and we are left with the choice of sending lower grades, do you think we would lose the export market ?

Answer.—Definitely, because of the price factor and also because of the ash content. No one will buy ash. It must be remembered that after the last war, we exported inferior coal which affected the export trade very badly.

Question.—You are aware of the almost unanimous demand about banning the export of metallurgical and high grade coal. What do you think of this ban ? Will this affect our overseas trade ?

Answer.—If you ban the export of your Selected 'A' and 'B' coal, you would have no shippable coal. You would have to wind up the whole export trade.

Question.—You have suggested in the latter part of your evidence that the utilisation of inferior grade coal could be popularised for purposes where high grade coal is used today, by washing, cleaning, beneficiation, etc. Could similar processes benefit inferior coals and make them suitable for the export market ?

Answer.—Yes. Some coals can be washed but the cost is very heavy. We want to make this point strongly as there appears to be loose thinking on the question of washing. All coals cannot be washed.

Question.—With the present shortage of transport, do you consider that the priorities given for export coal affect adversely the movement of coal for internal purposes ?

Answer.—No. The lead is comparatively short and normally it is one of the leads that the Railways can handle efficiently. Transport of coal should not take more than 48 hours down to the docks and you have got a rapid turn-round of wagons.

Question.—In view of the present shortages, what is your comment on the suggestion that only just sufficient coal should be supplied for bunkering as would enable the ship to go to the next port ?

Answer.—I think it would be unwise, and it would be a very good way of killing your export market.

Question.—May I then conclude that you are in favour of leaving the export trade entirely free and untrammelled by restrictions ?

Answer.—Yes.

Question.—Would you be very much upset if the present concessions were withdrawn ?

Answer.—Very naturally we would.

Question.—Will that have any material effect on the export business ?

Answer.—It might, later.

Question.—Is there a control price for coal that is exported?

Answer.—Yes, there is the price fixed under the Colliery Control Order to which the charges are added.

Question.—I take it that the firms engaged in exporting coal have their own authorised representatives in various cities like Colombo, Singapore, Shanghai. Is it not possible for you to supply them at what are called 'deferred charges' (i.e., the controlled prices) and for them to charge whatever the market can afford to pay at the other end ?

Answer.—It is not possible because the export has always been direct to our customers.

Question.—You have suggested that the Grading Board's surplus funds should be utilised for advertising Indian coal abroad.

Answer.—Yes.

Question.—Do you mean it should be in the form of a subsidy for the purpose either of retaining or expanding the export trade ?

Answer.—That was the purpose for which the Board was formed.

Question.—Surely it is not your suggestion that the Government should become a publicity agent for the exporters of coal ?

Answer.—I see no objection. After all it is a national product.

Question.—What is your opinion about the present sea freight : coast-wise and ocean-wise ? Do you anticipate substantial reduction in the rates in the near future ?

Answer.—Not in the near future. So long as there is a shortage of shipping movement from one country to another the demand will presumably keep up. But when there is surplus tonnage, rates must fall.

Question.—You are aware that the present freights for shipment coal, i.e., coal going to Indian ports, are very high and in view of transport difficulties there is no choice for some consumers except to ship coal by steamer. Taking everything into consideration, would you agree to some sort of a special rebate being given on shipment coal as distinct from export coal ?

Answer.—Who is going to pay it ?

Question.—It must come out of somebody's pocket ; may be the Coal Industry's, may be the Government's.

Answer.—We suggest it should be the consumer's.

Question.—You have expressed the opinion that the grading of coals for the internal market is desirable but you don't think that it should be made compulsory. Could you give us your reasons for this opinion ?

Answer.—Yes, it seems rather unnecessary to make it compulsory. When a consumer buys his coal, he knows what he is getting. If he does not like it, he does not continue to buy that coal.

Question.—Is it your suggestion that the grading of coal will be of use to the consumers, when you say it is desirable ?

Answer.—Yes, it would be of use to an ignorant consumer but not to others. Generally speaking however the consumer knows what he is paying for.

Question.—When you say it should not be made compulsory is it your suggestion that the coal trade should be left to offer what it can to the consumer, for him to buy whatever he wishes ?

Answer.—Yes. He is a free agent. If he finds that a certain class of coal is what he requires he will be free to buy that class.

Question.—Would you go so far as to say that a consumer like the railways should be left quite free to demand coking coal for burning in the boilers ?

Answer.—Why not ? Presumably they want to get the best coal ; for long hauls for example. They know better than we do the class of coal which suits them best. Presumably they are going to pay for it and they should have it.

Question.—The same thing would, I suppose, apply to the Iron & Steel Industry in respect of which there has been a suggestion that they have not been forward-minded in the matter of using the fuel.

Answer.—Quite. If they want to buy all the coking coals available it is merely a question of paying for them.

Question.—Nevertheless if grading is made compulsory would it be your opinion that the work of the Coal Grading Board should be merged in a larger organization looking after the interests of both producers and consumers ?

Answer.—Yes. Our idea is that there should be one central body for coal, and naturally they would take all these organisations under its wing.

Question.—In view of the experience gained during wartime about the concentration of loading facilities and in particular the pooling of shipment coal, do you think that this pooling can be continued in normal times ?

Answer.—Definitely not. In fact the continuance of pooling of coal has always held up the turnaround of steamers. Now, more so, because we know when steamers are coming, whereas during the war for security reasons we did not get information. The trouble about the pooling system, which admittedly could not be avoided during the war, was that the coal was programmed

to the docks in an even flow throughout the month. That means with four berths occupied at the same time there is not sufficient coal in wagons for direct shipment into steamers; the loading has to be supplemented from ground stock. That is always a slow business. The quickest way is to have sufficient number of wagons to keep the steamers going and load direct from the wagons into steamers.

Question.—Have there been any changes for the better in the coal loading facilities in Calcutta since the war began?

Answer.—No.

Question.—If you were told that the transport facilities available for the movement of coal would continue to be short for some time would you still object to the continuance of this pooling?

Answer.—It would still be unsatisfactory. In my view, and purely from the shipment angle, turning round steamers quickly means a return to the pre-war system whereby advance information of the date on which the steamer would berth and the quantity of coal necessary for it was received. Then the coal required was brought over a period of 4 or 5 days in large quantities and loaded directly from the wagon to the steamer. In this way steamers used to turn round in an average of 3 days, whereas the average at present is 5 days.

Question.—What are your views about the development of ports other than Calcutta?

Answer.—Certainly more sidings must be provided. Especially when steamers arrive, the lack of siding facilities is felt.

Question.—Admittedly the port facilities have never been adequate. In view of the policy of industrialization, region by region, which ports do you think should be developed first?

Answer.—From the Coal Industry's point of view Calcutta must always be the first.

Question.—None of the other ports seem to be catering for the bunker trade, are they?

Answer.—Yes. Madras is doing bunkering business; Bombay also to a considerable extent.

Question.—About the export of coal: as producers so long as you get an assured market for your output, you really should not worry.

Answer.—That I suggest is a narrow view. Export is in the interests of the country.

Question.—I am asking you as 'producers', and leaving out the country's interests.

Answer.—Your interpretation is correct.

Question.—In future if your output finds a market, it is immaterial whether it is inside or outside India.

Answer.—Yes.

Question.—In your written reply to the questionnaires you have estimated the future despatchers at 3 million tons per annum for the export trade and for bunkering. That figure, according to my experience, is a very high one. I would like to get it confirmed.

Answer.—3 million tons for bunkering and for export. Yes, the figure is a high one considering the present port facilities.

Question.—What will be the figure for export only?

Answer.—1½ to 1½ millions.

Question.—A suggestion has been made that it may be necessary to restrict the export trade to low grade coal.

Answer.—Yes.

Question.—But if the export is restricted to low grade coal, only the big collieries will be able to do the export as there are not many small collieries raising low grade coal who would be in a position to handle the export trade due to many difficulties by way of freight rates etc.

Answer.—That is right. The trade must be left to big collieries.

Question.—Have you any views on beneficiation of low grade coal?

Answer.—That is a technical point. My general opinion is that it would be better if the coal is shipped after washing or beneficiation.

Question.—With regard to the suggestion that the prohibition of export coal might result in an improvement of supply for internal use. Your point is that the difficulty of internal supply is not wagons but the inability of the railway lines and junction stations.

Answer.—Yes.

Question.—Would you also say that the export trade really has no effect on the up-country transport?

Answer.—I would say so.

Question.—With regard to bunker coal, your point was that supplies should be sufficient to enable the ships to voyage up to the next port of call, anywhere within a reasonable distance.

Answer.—Yes, quite so.

Question.—You have been good enough to elucidate your suggestion for publicising Indian coal in the overseas market and your suggestion was to utilise the surplus funds of the Coal Grading Board for such publicity work. I see from the Coal Grading Act that the proceeds of the funds are to be utilised only for expenses of the Board. Would you recommend the amending of the Act to cover this point?

Answer.—Yes.

Question.—This surplus fund might be utilised for fuel research purposes. Do you agree?

Answer.—Yes.

Question.—Having regard to the present difficulties that are being experienced in meeting the existing internal demand, what do you think are the chances of the coal industry meeting the entire demand within the country itself in the near future?

Answer.—We anticipate no difficulty in meeting the demands of the country, provided of course we get railway facilities which are most important.

Question.—I take it that you admit that the export trade should be maintained, only subject to the over-riding condition that the internal demand must be fully met.

Answer.—That is only fair.

Question.—As regards the quality of coal that you want to export you said that it must be of the very best and it must be good quality coal. Now what do you think of the position in regard to the output of good coal? Would it justify the indiscriminate use of the better class of coal?

Answer.—Like everything else, people would like to purchase the best.

Question.—Would you advocate the indiscriminate use of the better class coal for purposes for which an inferior grade might be used?

Answer.—It is the fundamental point of economics that every industry would like to use the best materials if it would mean using lesser quantities.

Question.—May I take it that your opinion is that we should blindly allow the better class coal to be used for whatsoever purposes it may be put? Would you go as far as that? Brick burning, for instance?

Answer.—Well, as a generalisation, I think a man should be free to buy the coal he considers best.

Question.—Considering that the present demand is in region of 28 million tons, would you consider 32 million tons more or less reasonably accurate as an estimated demand in the next 2 years?

Answer.—I think so—for the next 5 years.

Question.—Even if the export trade is allowed to operate freely?

Answer.—Yes, because knowing what we do about the country's development, it should take that time to increase it.

Question.—Would you agree with our estimate that out of this 32 million tons 28 millions must come from Bengal: Bihar?

Answer.—Yes, definitely.

Question.—Do you agree that there are possibilities of more rapid and intensive development of the coalfields in places like Central India and C. P. than in old congested areas like Raniganj and Jharia?

Answer.—Well, the latter have definite geographical limits.

Question.—The production of coal in areas outside Bengal: Bihar amounted to 5 million tons in 1945. Considering that most of those areas are still merely being scratched, would you not agree that there are great chances of development in Central India?

Answer.—There are, I think, definite limits on account of quality which is most important.

Question.—In regard to the Railway facilities are you in favour of setting up an allotment area to serve Bokaro, Ramgarh and Karanpura fields?

Answer.—Yes.

Question.—What will be the suitable location for the headquarters?

Answer.—Bermo.

Question.—In reply to question 13 sub-heading (h) you have stated that the Railways which are a national service should equip themselves to handle the peak traffic. Do you think that it is a sound proposition for a carrier to equip himself to handle traffic at the peak period and leave his stock idle for the best part of the year?

Answer.—Well, you have electric supply companies, for example, which do something similar.

Question.—You will agree that in order to handle the peak traffic the Railways must increase their rolling stock position?

Answer.—We don't know whether there is sufficient ground for that. We think that the rolling stock position is not as bad as it is made out to be. We are under the impression that it is not a shortage of wagons, not even a shortage of locomotives, but that it is due to bad administration.

Question.—If nevertheless an increase in stocks becomes necessary it may mean an increase in freight rates. Would you be agreeable to that?

Answer.—I should imagine that the consumer will be more than pleased to get his coal.

Question.—Will it be agreeable to the trade?

Answer.—If it is uneconomic for the Railways to carry the peak traffic we must agree that the only solution is to have a suitable freight rate.

Question.—Is it the case that a short allotment of wagons of one day is not made up subsequently?

Answer.—It is not made up.

Question.—Do you think that is practical today under the present system of controlled distribution?

Answer.—Yes, we see no reason why it should not be done.

Question.—Under the system of controlled distribution there are hardly any empties left over to serve short-falls on the previous day.

Answer.—Yes, it may not be easy, but the railways must attempt to do so.

Question.—You will appreciate that the 1937 Committee recommended the abolition of priority supplies of coal except to 2 or 3 customers. Do you agree with the view?

Answer.—There should not be any priority except to one or two cases. I think so.

Question.—Even if there is a coal shortage?

Answer.—Well, of course, one has to modify one's views in that event. We are under the impression, rightly or wrongly, that we shall catch up with the demand.

Question.—Assuming that there is a coal shortage?

Answer.—Assuming that there is a coal shortage I think we must admit that there should be a priority system.

Question.—Running right down the list of consumers ?

Answer.—Yes.

Question.—What is your comment on the allegation that any system of priorities for coal supplies tends to give some measure of unfair advantage to producers of high grade coal ?

Answer.—Yes, I suppose it does because as I said before, everybody tries to get the best coal. That is the only advantage.

Question.—There is nothing inherently impossible in devising a scheme of priorities which might react otherwise ?

Answer.—No.

Question.—You could have a different scheme of priorities which would positively encourage the use of low grade coal ?

Answer.—You have it in the case of brick burning. Substantial quantities of inferior coal are despatched, in the season, and good coal is kept back. There are certain purposes for which Grade III can be despatched and other purposes for which Grade II can be despatched. The system provides for the purposes to which coal is used.

Question.—Could this be extended ?

Answer.—I think the present system covers all industries.

Question.—In the matter of installation of private weigh-bridges, would you prescribe a minimum output for installing a private weigh-bridge per colliery ?

Answer.—Yes. Five to six thousand tons, per month.

Question.—Is it possible, from your knowledge of the coalfields, for a group of collieries to join together and have a joint weigh-bridge ?

Answer.—Yes.

Question.—Are you in a position to express an opinion of pooled stacking arrangements in particular regions during the slack season ? I mean stacking coal for consumers like the Jute Mills and the Cawnpore group, and the Ahmedabad Mills.

Answer.—We don't like it.

Question.—Not in the case of individual consumers but as a pool ?

Answer.—I think the consumer does not like it. He does not quite know what quality of coal he is going to get. It costs him more, of course.

Question.—Under the present system coal is by and large booked at owner's risk and allegations are made that pilferage and theft *en route* are on the increase. Do you consider that the problem is of some magnitude and if so what are your remedies for the state of affairs ?

Answer.—Well, it is definitely of course on the increase because coal is more valuable than it was but a solution is to make coal available for everybody and there will not then be any stealing.

Question.—Have you any specific steps in mind which the carriers should take in this respect ?

Answer.—The up-country buyer does not ask for his coal to be loaded in covered wagons. That is the easiest step of course to take. But we don't like covered wagons because they can not be loaded from loading plants and that slows down the quick turn-around of wagons.

Question.—Coal of course can be booked at Railway Risk.

Answer.—Yes, but I think that is only possible when coal is loaded in covered wagons. Even then there is a snag. You have got to prove that the theft has occurred through the negligence of the carriers. This is what happened during the famine of 1943. We had rice stolen from wagons *en route* to the collieries—that, too, from covered wagons. We claimed from the Railways, but they rejected our claims.

Question.—So, in your opinion, sending of coal at Railway Risk is no protection.

Answer.—I do not think so.

Question.—Would you prescribe any minimum output for a mine as a prerequisite for the grant of assisted sidings ?

Answer.—5 or 6 thousand tons a month.

Question.—As regards the other collieries what would you suggest ?

Answer.—They can guarantee minimum loading jointly.

Question.—Your suggestion is that, if one single colliery is not able to satisfy this particular condition, certain small collieries should group together for the purpose.

Answer.—That is generally our idea.

Question.—In what respect is the present sidings agreement objectionable ?

Answer.—Collieries are forced under this agreement to pay compensation for any damage to the track and have to undertake not only to support the railway sidings but also the main line. We have no right on the land. We have to undertake to pay compensation to somebody else in respect of minerals in our own land. These are obviously objectionable terms.

Question.—Is it your case that the siding terms should be different in the case of the Coal Industry from what they are in the case of other industries ? I am told that the terms are uniformly applied to all industries.

Answer.—There is a point peculiar to the Coal Industry and that is the support of the assisted siding and extraction of the coal underneath the siding.

Question.—There are sufficient circumstances justifying the specification of certain terms in the case of colliery sidings ?

Answer.—Yes.

Question.—Question 21. Do you consider that the introduction of a Group System of Railway Freights is feasible. The question relates particularly to Raniganj. What will be your reaction to the suggestion that a group system should be introduced to the Bokaro field ?

Answer.—Proposals were made some time ago. We thought them so complicated that they did not justify supplanting the present rates which have been in operation for some time. But we may say that we have not got firm views on question.

Question.—Any views on Bokaro ?

Answer.—In Bokaro we probably have to develop. There has been some grouping.

Question.—Is it possible and desirable ?

Answer.—I think it is.

Question.—In regard to Raniganj too.

Answer.—Yes.

Question.—Could you say what classes of coal could appropriately be used for the various services in the Railways ?

Answer.—It merely comes back to the old question — they prefer the best, they get the worst.

Question.—Would you say that the present raising costs are high ?

Answer.—They are high and they are getting higher, month by month, and year by year.

Question.—Have you any special measures to suggest for securing a reduction in these costs ?

Answer.—The greatest difficulty is the output per man. The output per man in India is the lowest in the world, and that puts up costs. If the outputs were doubled per man shift, raising costs would be very different. Unfortunately, it is the other way round now ; not only in India but all over the world, the miner is producing less coal.

Question.—In order to be able to improve the output of the Indian miner, can you suggest any positive measures.

Answer.—We have tried practically every conceivable thing, but the present lack of consumer goods is one of the biggest obstacles. The miner has practically nothing to spend his money on. He does less work ; he goes away more often and does not work hard when he is there.

Question.—Do you mean that to improve production you should keep the miner penurious ?

Answer.—On the contrary. We want consumer goods to be made available which will provide a reasonable outlet for his earnings ; and we assume, and we know, that he will try and earn more money to buy these goods.

Question.—Are you in favour of prohibition in mining areas ?

Answer.—Generally speaking, what we would like is a properly controlled liquor industry. Remove the shops, say, a mile away from the Collieries. Let the miner thus have as little temptation as possible. Considering the distance,

perhaps he would not drink so much or ever may not go at all.

Question.—You have emphasised the need for speedy means of acquiring land for mining purposes. Is it that the requirements cannot be foreseen well in advance ? In such cases are not the provisions of the Land Acquisition Act, enabling possession in advance of the completion of acquisition proceedings, adequate ?

Answer.—No. It takes a long time normally, probably 6 months under the normal procedure but in certain cases it even takes 2 years and in most cases about 18 months.

Question.—Under Section 17 of the Land Acquisition Act you are allowed to take possession of the land even before the proceedings are completed if the land is needed for public benefit or for a company.

Answer.—The interpretation of “ public benefit ” is very difficult.

Question.—The point is if a colliery company requires land urgently for an emergency purpose they can apply under the Land Acquisition Act Section 17 and they can get possession of the land within a month or so, although no positive orders have been passed on the application. The Collector has the right to hand over the land.

Answer.—All that depends on the Collector, the Deputy Collector, or the special Land Acquisition Registrar. It would be more helpful if the existing legislation is amended early. May I point out also that the Government of Bihar have decided that no arable land will be allowed to be acquired.

Question.—In respect of washing, do you consider it should be the responsibility of the individual colliery to instal washing plants ?

Answer.—That is a very difficult question to answer. Except for very large collieries it is not economic to instal washing plants.

Question.—Perhaps you could consider grouping of collieries and having a centralised washing plant.

Answer.—That might be done, provided you have transport facilities. You have also to consider the lack of a suitable site for putting the washing plant. There is another point : unless coals have the same physical characteristics, you cannot wash them together. Coals from different seams have to be washed separately. One seam may require one density of fluid and another a heavier density. You cannot mix them in washing. Collective washing cannot be done even for the same colliery, or even the same seam unless the physical characteristics are the same.

Question.—What is the practice in other countries ? Are you aware of any ?

Answer.—In the U.K. most of the coal carbonised in coke ovens is washed.

Question.—Do you know of any instance where washing is done by the consumer and not the producer ?

Answer.—No.

Question.—Would you consider the proper role in the matter of research to be that of the State or Industry ?

Answer.—One should be complementary to the other.

Question.—Should the industry bear a proportion of the cost if a Centralised Research Institute is set up under the auspices of the Government ?

Answer.—I would say definitely yes.

Question.—You are aware of the proposed establishment of the Fuel Research Station. Have you any comments on the scope of research outlined for that station ? Do you think it is adequate ?

Answer.—Yes, it is adequate.

Question.—Have you realised the implications of the financial support which the Government of India proposes to give to this Fuel Research Institute ? I am referring to the printed pamphlet which you must have seen.

Answer.—Yes, I have seen it. As far as I remember, it is quite reasonable.

Question.—Do you agree that a complete analysis both of the physical and chemical properties of all coals is very necessary ?

Answer.—Yes.

Question.—Would you agree that a staff of nine people in the physical section and seven people in the chemistry section is adequate for conducting that analysis for the various types of coal available in the country ?

Answer.—I think so.

Question.—But if it takes 50 years to complete the research ?

Answer.—I do not think it will take fifty years.

Question.—In regard to educational facilities it has been suggested that a measure of compulsion should be applied to bring children of school-going age to the schools. Of course this has reference to colliery mining labour. Have you any thoughts on the subject ?

Answer.—As far as the educational field is concerned, we agree that it is necessary to make education compulsory.

Question.—If the State were to come forward with a Scheme of compulsory primary education all over the country, would you agree to contribute towards the cost of such a scheme ?

Answer.—We would be happy to bear our share if it is for the improvement of the education of the labourer.

Question.—Do you agree that educational facilities of this type are better run by the State than by the individual collieries ?

Answer.—I think primary education must be the duty of the State.

Question.—In reply to question 40 you have stated that it will not be possible to establish a really permanent labour force unless it proves practicable to produce sufficient unskilled labour of a different type. What exactly do you mean by that ?

Answer.—The miner today is primarily an agriculturist and there is nothing in the world we can do to keep him away from the fields. So if you are not to employ the agriculturist then you have to do the same as Tatas have done. I mean import labour from the Punjab or something like that into the mines. That will have a bearing on the general structure of the Provinces.

Question.—Surely you will agree with me that all industrial labour in a country like India, which is in the very preliminary stage of industrialization, comes from the land at one time or another. Even Tata's men must have come from the land.

Answer.—Yes. In the latter case they come from the barren parts. This is so in Bihar and in the districts from which come what we call Gorakhpur labour. That is an entirely different labour force.

Question.—What is your experience of the Gorakhpur labour that has been employed for some time in some of the Collieries ?

Answer.—It really depends a great deal on the Officer-in-Charge. Some have been good, some bad.

Question.—Are you hopeful that this labour will come up to your expectations ?

Answer.—We have hopes that way.

Question.—About the Coalmines Labour Welfare Fund : could you tell us what object that fund is at present fulfilling ?

Answer.—Well, it is not being used at all. It has an income of 50 to 60 lakhs of rupees or so and absolutely nothing has been done with it with the sole exception of the anti-malaria work which has been done extraordinarily well. This has been expensive but it has brought down malaria. With the rest of the programme unfortunately nothing has been done. Every thing is down on paper. The Fund has not even a blue print of a hospital. Some material work must be done. Now the Mining Association has taken it up with the Labour Department very strongly and I think they will improve matters.

Question.—Are you quite satisfied in your mind that your approach to the labour problem is the correct one ?

Answer.—I cannot say. That is what we wish it to be the correct one.

Question.—It has been suggested to us that you have made every effort to solve this question, made all approaches to the labour problem, excepting the human approach. Is that a correct statement ?

Answer.—No. Unfortunately we have found, it is a very sad thing to have to say - that the more we do, the less we get.

Question.—That is the sort of allegation that has been made to us. It does not apply only to the Mining Association, it applies to the whole Industry. They have tried every method of keeping the labour excepting the human one.

Answer.—Take the recent reports of the Rege Committee on different industries. We have, I think, shown up very well. True—we would like to see better houses. In the past we never had the money to build. As we have passed out of the difficult years we have been meeting the demand for accommodation. As regards food and looking after the miner, we have done more than anybody. We all—from Dr. Ambedkar downwards—depend on the miners, and that is why they should be well looked after. The miner is of far greater value than the machinery.

Question.—You have expressed an opinion about the desirability of Central Control in the matter of mineral development. We may itemise the various matters connected with the Coal Industry as follows :—

Grant of mining leases,
regulation of mining methods,
production,
distribution,
prices,
research,
labour,
wages,
labour welfare,
communications,
health,
sanitation,
education,
etc.

Do you think that all these matters can be dealt with by the Centre, preferably should be dealt with by the Centre ?

Answer.—Well, we are definitely of the opinion that there should be one Central authority for the coal industry because we have suffered so badly during the past six years when we were having to deal with not less than three Hon'ble Members.

Question.—As between the Centre and the Provinces, do you consider it is possible, or practicable or desirable to divide up the various items I have stated just now ? Do you think division of responsibility between the Centre and the Provinces is feasible ?

Answer.—No. Whatever happens the Centre must retain the authority.

Question.—Take for instance education. It is not really necessary that the spread of education in a particular area should be directed by the Centre.

Answer.—No.

Question.—Would you consider that the very important question of safety in the mines should be treated as an independent item or would you like that also to be put under the central authority ?

Answer.—I think the latter is essential.

Question.—Certain objections have been raised to the proposal to place the control over production and distribution and the control over labour under one department. Do you consider it will meet the case for one Minister to be in charge of two departments dealing with these matters ?

Answer.—We consider that production is inseparably connected with labour. Under the old set-up the Labour Department was in charge of coal, and there was nothing wrong with that. But when the Industry is split between the Labour Department and the Supply Department, then I say, there will be chaos, because the Labour Department will develop ideas on the welfare of labour which are not consistent with the production of coal.

Question.—You will appreciate that a particular section of the Government entrusted with the control, or shall I say regulation, of production as well as distribution may not have the same approach to the labour problem as the Labour Department itself.

Answer.—Right. But there should be one authority.

Question.—Is it possible to have 2 departments under one Minister ?

Answer.—It is possible. Probably it is desirable that they should be connected.

Question.—You have said in your reply that if some measure of control is decided upon in respect of the production and consumption of coking coal this must be on an All-India basis if it is to be effective. I should like some light thrown on this matter, keeping in view the fact that the majority of coking coals are only from one field-Jharia.

Answer.—Right. But I think it is impossible to select, and isolate any coalfield. You cannot particularise this or that, but must take into account the Coal Industry as a whole.

Question.—You mean you are not referring to the geographical entity of India, but you are referring to the Coal Industry as a whole.

Answer.—Yes.

Question.—On the constitutional question : you have expressed yourself very clearly about the necessity of one central authority dealing with all questions affecting coal. I should like you to consider an alternative to this, an alternative system in which the Provincial Governments would be completely independent and endowed with the fullest authority to deal with all questions affecting coal legislation and administrative authority. In this way we may have the Government of Bengal fully competent to deal with all questions regarding the Raniganj coalfield, the Government of Bihar likewise fully competent to deal with all the coal resources in the Province, and so also with the C.P. Now if it were decided to have a system like that, what measures might be taken to have some sort of efficient system of unified policy which would regulate the entire business of coal in all its aspects ?

Answer.—We suggest that the 3 major provinces concerned with coal are Bihar, Bengal, and the C.P. Under such a constitution, in the absence of a central authority, they must amalgamate to deal with coal ; otherwise, there will be chaos.

Question.—Your suggestion is that the Provinces, and when I say Provinces I mean also States having coal reserves, should somehow get together and have a kind of joint policy and, I would add, a joint machinery for carrying out the policy.

Answer.—Yes, undoubtedly.

Question.—I can understand Bihar, Bengal and the C.P. welded together. But does the same apply to Assam, Baluchistan, and the Punjab ?

Answer.—They are so small that it really does not matter.

Question.—Is it your considered opinion that the proper scientific development of the mineral resources of the country, particularly coal, would take place only under a uniform policy ?

Answer.—I think there is only one answer Yes.

Question.—One side issue : the question of safety in mines. Do you think the safety department or safety section of this set-up should be under an executive authority responsible for the development of minerals ?

Answer.—It should be a part of that Department : but safety is the most important thing in mining.

Question.—Assume that there is one Minister in charge of mineral development—the executive authority responsible for the development of resources.

Answer.—Then I think he should take it under his wing.

Question.—To the rather vague question whether the structural organisation of the Industry is satisfactory or not, you have given also a vague reply that you consider it is sound. May I enquire what in your opinion are the trends, developments, of coal mining interests in the last 10 years ? What shape they have taken ?

Answer.—One of real importance is that consumers of coal, I think, have taken a more lively interest in acquiring coal properties themselves.

Question.—There has been an increased tendency towards vertical integration ?

Answer.—Yes. This has been noticeable in the last 5 years.

Question.—Do you see anything objectionable in that ?

Answer.—No.

Question.—Supposing the consumer interests were to keep on increasing the acquisition of coal properties and reach a stage where they might be in a position not only to have all their requirements of coal but also to sell coal, will there be any objection to this development ?

Answer.—No, I do not think so.

Question.—In your opinion, no limit need be placed on such acquisitions by consumer interests ?

Answer.—I don't think so.

Question.—Then how would you reconcile this with your pointed criticism of the acquisition by the railways of certain coal interests ?

Answer.—That, of course, is the Government of the country. If they have surplus coal and they foolishly sell it, it is merely depleting their own resources.

Question.—Then your objection to the railways owning collieries is because they are State-owned, not otherwise ?

Answer.—Yes, the State is competing with the individual.

Question.—As far as the railways are concerned, your objection proceeds primarily from the viewpoint that railways are State-owned. Tomorrow if the steel industry is nationalised, a similar objection will appear ?

Answer.—Naturally.

Question.—Cannot some independent criteria be applied apart from freedom of trade and things like that ; something like national interests ?

Answer.—Yes, but the national interests, viewed as a whole, include the interests of consumers.

Question.—Perhaps you would like to revise your opinion about customer-owned collieries. In your written reply you have said " provided it is of reasonable proportions and does not reach the stage at which consuming interests by the size of their holdings can dictate the policy and price structure of the industry as a whole".

Answer.—Yes, of course that is our wish.

Question.—But I understand you to say that you have no real objection to the consuming interests acquiring freely whatever they wanted to acquire.

Answer.—Man is free and can do whatever he likes.

Question.—Does the development of the managing agency system mean restriction of free competition more and more ? Managing Agents not only have a concentration of producing interests, but also side by side a concentration of consuming interests. So much of the coal market is thus taken out of the region of free competition ?

Answer.—That is rather difficult to answer, because there may be a group of managing agents controlling collieries who are not particularly interested in the coal they are mining.

Question.—Generally, Managing Agents have other interests. I have a book before me compiled in 1942. I will take Shaw Wallace. They have 16 companies under their managing agency. The number of coal companies is six. Now considering that they have got 10 other companies under their control, is it not possible—I do not say it is likely—that the financial future of the coal companies might be jeopardized for the benefit of the other ten companies ?

Answer.—No, that is an accusation we have all refuted.

Question.—But surely in times of stringency you sacrifice the smaller for the bigger.

Answer.—In some cases. But there is no reason why coal should be sacrificed for the benefit of the other companies.

Question.—Smaller industries are likely to be sacrificed for the cause of the larger interests which you have ?

Answer.—I don't think so. As regards the efficiency of the other interests—they depend on their primary power, that is coal.

Question.—You have stated that the Managing Agents render a very useful service in co-ordinating the activities of the coal companies under their control and also in providing technical service to the group. In order to achieve these two purposes is it necessary to have Managing Agents ? Could not that be done through some other means ?

Answer.—The only excuse for the existence of the Managing Agency system is that it has proved to be the most effective system in India.

Question.—Excuse me, I am not going into the past history of Managing Agents. We are trying to find out a rational way for the future in the matter of organisation. What I have in mind is, if national interests demand, some sort of control over production and distribution, with at the same time provision for an efficient research service, also for providing the coal industry with adequately trained technical staff and the setting up of an Investment Corporation for the purpose of helping the lame dogs in the industry : if all these things are put up for the future as a policy of the Government, would you still justify the continuation of the Managing Agency system.

Answer.—Then it would cost you twice or thrice as much, if you want to nationalise it.

Question.—I was not thinking of nationalisation at all.

Answer.—Well, you envisage a problem which never exists.

Question.—It may be utopian but assuming that the Government does that ?

Answer.—Then you are really performing the functions of the Managing Agents.

Question.—You remember the 1937 Report made some very serious allegations about the practice of Managing Agents in the matter of exploitation of coal deposits. I do not propose to go into the correctness or otherwise of these allegations but I would like to ask, if another period of depression similar to the thirties comes, what sort of safeguards have you in view to prevent reckless waste of coal reserves ?

Answer.—Well, it would be very difficult again. You would probably have the survival of the fittest.

Question.—You mean to suggest that you will seriously advise the Members of your Association not to look ahead or safeguard against possible depression which might come about ?

Answer.—No, but naturally one expects good judgment in the matter.

Question.—Looking at this depression period from another angle : you stated in your reply to the 1937 Committee that the primary responsibility for the depression should be lodged at the door of the railway purchase policy. Surely you will agree with me that that period of depression coincided with depression all over the world and whatever came about, willy-nilly, would have come whether the policy was of a different character or not.

Answer.—Right : to a certain extent.

Question.—Do you mean to suggest that if the railway policy had not operated in the fashion it did, the coal industry would have kept itself going ?

Answer.—Surely, it could have survived.

Question.—You refer many a time to the low pit-smith price prevailing at that time. Are you quite sure that the low prices were not really due to the very low level of wages in the coal industry ?

Answer.—No.

Question.—What would be the wage cost per ton in India ?

Answer.—We gave you some figures ; about 60%.

Question.—Would you think that the wage cost per ton is a good criterion in the matter of efficiency of production ?

Answer.—I think it is mainly a technical question.

Question.—In question 4 you have stated that the individual units of production are very much smaller in India than in U.K. or the U.S.A. and Holland. Would it surprise you that in America the number of mines producing less than ten thousand metric tons a year is very nearly 50% of the total number of mines at work ? Of the 6620 mines operating in 1933, 3276 were producing less than ten thousand tons a year. In India mines producing less than ten thousand tons are 337 out of the total number of 723 mines. Looking at it from another angle the average output per mine in America is 89 thousand tons, in England 112,000 tons, in India 39,000 tons. I cannot but say that this feature is not peculiar to India. Therefore, it does not really help us in trying to find out what type of organisation will suit.

Answer.—I agree.

Question.—Question 6 —In the penultimate paragraph of your reply you have expressed the opinion that it is "highly questionable whether it is moral for the State to produce coal with the result that the purchase price from commercial producers is depressed below that of economic production". You will agree that you are referring here to certain activities of State owned collieries.

Answer.—Quite.

Question.—If these activities of State owned collieries were divorced from consuming interests you qualify your statement to that extent ?

Answer.—Yes.

Question.—Do you consider that the allegation made in the 1937 Report, about managing agents looking to profits as the sole aim before them irrespective of what happens to the coal resources is true ?

Answer.—That I consider to be one of the most idiotic conclusions drawn. The benefits of the managing agency system have been known very long.

Question.—In 1941 your representative, Mr. Ross, gave evidence before the B. har Enquiry Committee that the Indian Mining Association was concerned with nothing else than the interest of their members. This was an unequivocal statement relating to the role which the Managing Agents play in the coal industry. Would you repudiate that statement or would you qualify it in any way ?

Answer.—The interests of the members does not mean purely financial interests.

Question.—There is no ground for complaint if the interests of the Mining Association are exclusively confined to the interests of its constituents, but the interests of the constituents may not necessarily coincide with the interests of the industry, nor may the interests of the industry necessarily coincide with the interests of the State. I am trying to find an answer to the rather racy description given in the 1937 Committee Report that the coal trade is like a race where profit is always first, safety a poor second, sound methods an also ran and national welfare a dead horse. Wouldn't you agree with me that it is not reasonable for outside people like the members of this committee to expect a trade association to place any emphasis on interests outside the work of their own concerns ?

Answer.—Yes, I think generally that is so, with the reservation that with coal being as important as it is, naturally we have in mind always, apart from the monetary idea, that we are something behind the interests of the country.

Question.—All that we can expect commercial interests to do is that if national interests demand them to follow certain lines of practices, certain techniques, they will be quite willing to fall in with those items of policy ?

Answer.—Yes.

Question.—There is one more small point in this connection : you have stated later on somewhere, on the conservativeness of the steel companies in the matter of fuel technology, that they have always demanded the very best class of coking coals for their use. It was dinned into me as a commercial aspirant that, in business, the customer is always right. Do you think that the steel companies, as customers, are no longer right ?

Answer.—They are perfectly right. As I have said, the best coal is always the best for the job.

Question.—You suggested that it is necessary to improve the fuel technology of the steel companies. Why pick the steel companies alone. Why not other industries too, including the railways.

Answer.—Because one of the specific terms of reference of your Committee was the conservation of coking coal.

Question.—As also conservation of high grade steam coal. My point was : should not a similar attempt be made to improve the fuel technology of other consumers in the degree of importance they occupy in the economy of the country ?

Answer.—Quite frankly, I think most of them are fully advised. Take the case of the ordinary brick manufacturer. He knows what coal would be best for him. The railways certainly know what they want but (a) are not able to get or (b) won't pay for it.

Question.—A suggestion has been made that if consuming interests acquire coal-bearing properties or become Managing Agents of collieries to an extent disproportionate with their consuming interests, it may result in the accumulation of too much power in one hand to the detriment of the industry and also the national interest ; but I think, surely, it is not financially possible for any one such interest to acquire so much. Only the State is in a position financially to do so.

Answer.—That was what I intended to imply. If, say, the cement-making interests or steel interests (because it is in their interests to acquire particular types of coal) want to acquire such properties and have the money to do it, I do not see how you can prevent it.

Question.—Regarding the suggestion that the Act should be amended to prevent wastage of coal when depression comes again.

Answer.—We have given a general opinion that most of the technical evils can be totally eliminated by amendments to the Act or by the Act being enforced.

Question.—You have suggested that the remedy for the present inequalities or deficiencies are, in the order of your choice :

- (i) amending legislation
- (ii) the State might become the trustee, and
- (iii) in the last resort the State might acquire the mineral rights.

Are you of opinion that any amending legislation will cover all the various whims and prejudices which are responsible for the defective leasing to-day ?

Answer.—I think it can be buttoned up.

Question.—Do you think we can find a common measuring rod for defining the terms of leases, in other words, the terms which must be incorporated in the lease, and which can be made the subject matter for legislation ?

Answer.—Yes ; I think so. That is the principal object of legislation.

Question.—How would you avoid fragmentation? What sort of legislation would you need for the purpose?

Answer.—No property should be smaller than so and so; and you will have to consider what will be exceptions hereto.

Question.—Where, as in Jharia, a unit of 250 bighas may be an economic unit in places like the Punjab you would want at least 4 to 6 square miles. You cannot lay down a uniform rule.

Answer.—The suggestion may be that coal in a given area underground should be so much in quantity etc. on similar lines as the size of pillars etc. embodied in the last Committee's Report.

Question.—Surely there is a difference. In the matter of granting of leases are you going to suggest that whoever grants the leases should have a full survey made about the resources in the area?

Answer.—We presume so.

Question.—What would you reckon to be the minimum total coal which should be made available to one party for operation?

Answer.—We assume the minimum of 5,000 tons of coal per month.

Question.—It may be possible to win that much coal even in a smaller area than 200 acres. You want to call it uneconomic? It may transgress other regulations like boundaries, facilities of working etc.

Answer.—It may be uneconomic.

Question.—You think it is possible to have a uniform measuring rod in the matter of granting of leases, which can be made the subject matter of legislation.

Answer.—That is my view. As I said, the allround sizes of pillars in collieries under Regulation 77 varies with depth. It is not very complicated. We can have some such regulation.

Question.—What would be the remedy for so called sub-infeudation? Would you agree to several sets of intermediaries between owners and operators?

Answer.—Yes; in respect of a competent body which would be prepared to enforce conditions of the lease.

Question.—Will the owners be left with the choice to subdivide according to their peculiar laws of inheritance so that, by the time exploitation of the property begins, the size left will be extremely uneconomic? How could you prevent this sort of sub-infeudation of property?

Answer.—It can be prevented by mining legislation. They can draw up their own regulations that certain conditions have to be complied with for mining purposes. As for Government's control to prevent further leasing or sub-letting, it is quite simple; it is a commercial contract. *c.f.* Zamindari rights. I think we can admit that there should be a statutory authority who should have the power to 'vet' and approve leases.

Question.—You really oppose interference with the rights of properties when you oppose acquisition of mineral rights on purely physical grounds?

Answer.—Yes. I think that is the general background.

Question.—But you will have no objection if, when the owner does not possess the necessary competence to manage his property properly, the State steps in to work that property for him.

Surely, we should not pay so much tribute to the doctrine of private property and perpetuate evils which may last for generations. After all what is the interest of the owner? Receipt of certain rent and certain royalties. By taking that property as a trustee you are safeguarding that much rent and royalty. Acquisition by the State after paying compensation to the owner amounts to the same thing. Would you still have any objection to the acquisition by the State of the mineral rights?

Answer.—In principle it is a question of free trading but if acquisition is the only solution—we do not agree that it is—we will have to act up to it.

Question.—Your first solution also contemplates certain control over the property by the State. Your second solution means dispossessing the owner of his colliery properties.

What I am suggesting to you is this: curtailment of the liberty of an owner translated into actual practice. Whether you take programme (1), or programme (2), really cannot be distinguished from programme (3).

Answer.—No, provided you give compensation to the owner and provided the State is more efficient than the owner.

Question.—Presumably so. You have observed in Question 9 that the suggested legislation should not touch upon the question of actual royalty and salami to be paid. Would you tell us why you have got a sort of soft corner for this item of expenses?

Answer.—The matter was really a question of fragmentation, uneconomic and so on.

Question.—Surely you will agree that the primary object is legislation to stop fragmentation and the leasing out of uneconomic holdings. Now what does induce an owner to keep on fragmenting his own property better royalties and more salamis.

Answer.—Yes, in many cases it is so.

Question.—Would you not agree that your legislation, if it does not touch upon royalties and salamis, will remain ineffective to that extent?

Answer.—Yes, I think it would.

Question.—In question 68 you have expressed the opinion that the Government cannot suitably regulate the rates of royalty or salami because these must often necessarily vary according to a number of factors: quality of coal, condition of

the coal market, position of the colliery owner and so on. You will agree that these various factors, which you have enumerated, more or less demand a sufficiency of technical knowledge in the possession of the owner ?

Answer.—Yes, they should.

Question.—Is it your opinion today that the owners do possess any such knowledge ?

Answer.—I would think so.

Question.—Has the Jharia Raj any Inspector of Mines at all ? Is he well equipped with technical knowledge of production etc. ?

Answer.—He has advisers.

Question.—You have also expressed opposition to the abolition of salami simply on the ground that it is a payment generally accepted throughout the mineral industry. Surely your responsibility does not accept the present circumstances to be good enough for the future. If it is generally accepted why should it continue ?

Answer.—Well, we have qualified that by saying that “ if abolished it would require to be substituted by higher rates of royalty which would be unacceptable to lessor and lessee alike”. As an Association we do not think it is practicable.

Question.—I would like to suggest to you a way, on the analogy of the Irish Land Bill, that the cultivator of the land can buy the land he cultivates by going to the Government and asking the Government to assess it by valuation. The Government then forces the owner of the land to sell the land to the Government. The Government finances the purchase and recovers the money from the cultivator on a sort of hire purchase system. I would suggest this analogy as applicable to the acquisition of the mineral rights by the operators.

Answer.—Well, I think the answer is that the cases are not the same. Coal is a wasting asset.

The object in the past, and I can say, for the future as well, is that without some financial guarantee the owner feels that he may be losing his property to people who exploit without any regard for the future.

Question.—Why should this institution prevail only in India and not in other countries ?

Answer.—Perhaps they are a little more developed in other countries.

Salami is there by custom and no one wants to give it up.

Question.—Why should industry support the position ? I put a question on the analogy of the Irish Land Bill. Do you think it is at all applicable to the coal industry ?

Answer.—I think you have the inherent risk that you don't know how your coal property may turn out.

Question.—Surely the State can bear the risk ?

Answer.—Perhaps I should make myself clear. A purchase of a property is really a different question. I suppose that the prices are good and

I get the property without putting any cash down in a big sum, whereas if I have put my money into the property I must get my property started.

Question.—I could look at it from another angle. If you have money invested in the purchase of the property you will be very careful. If the State is required to play the part of a sort of Santa Claus, or as a Guardian Angel to the coal industry, if it is asked to devise means to provide stability to the market, is asked to act as an arbitrator between railways and the supplying companies, as also to map and survey and possibly prospect under its Geological Survey and also, under the Fuel Research scheme, keep on analysing the various classes of coal if all these functions are supposed to be performed by the State surely you can give some right to the State in the matter of regulation of production or even the small matter we have been considering—the regulation of the mineral rights and their operation.

Answer.—Yes, I think that it is definitely accepted. The industry accepts the fact that it does cooperate with State, otherwise it would be an impossible position.

Question.—Would you support royalty being assessed on the basis of prices of the different types of coal, instead of being a uniform rate ?

Answer.—I don't have any objection to a percentage basis.

Question.—Have you any information, before I leave this subject, regarding the extent of a lease given to one person or one corporation as against the maximum prescribed in the Mines Manual of 10 sq. miles ? There are certain leases covering much more than that area. Have you any opinions to express on that ?

Answer.—No, I don't think so.

Question.—You have no objection ? Or rather you do not consider that limitation should be placed in this respect. It will not lead to coordinated development ; it may not lead to coordinated development ?

Answer.—You will not have a monopoly.

Question.—What I have in mind is that one person or corporation takes the whole of a vast area under one lease and physically that corporation is not capable of developing that area in the manner it should be developed i.e., in a coordinated sequence.

Answer.—Does not that provide the answer ?

Question.—Should there be any pressure put on such a corporation in cases of this nature or, in other words, should there be any legislation on the grant of leases in respect of size ? Should one person or one corporation be permitted to take a mining lease covering an area larger than 10 sq. miles ?

Answer.—Yes, I think so ; if the person or corporation has sufficient interest to acquire it.

Question.—The chances are that this person or corporation will not be able to develop that area properly or in good time.

Answer.—Yes, normally that would be so.

Question.—Could you give me the history of the lease of Karanpura ?

Answer.—That is exactly what I have in mind. The lease was taken 25 years ago and had there been a need for coal 10 years ago it would have been developed. In any case a large amount of money has been spent on it.

Question.—Is there any area in Karanpura regarding which an allegation has been made to us that the mere fact of ownership of a vast area by one corporation will stand in the way of its development ? It is possible that the owners of the present leases want to stick to their leases for some reason or other and do not want them to be developed.

Answer.—Yes. That is possible if anybody assumes the view, for example, that cooking coal is scarce and has been led to believe that if anybody put money into cooking coal he will reap fantastic profits after a century. But I cannot think of anybody in Karanpura who is under that assumption. If any individual or corporation is in a position to develop large areas there is no objection to giving on lease more than 10 sq. miles. At present there are certain limits and we pay different rates on different areas. This is not really a major defect, but there should be no limit on the size.

Question.—Q. 10 ; it is rather unfortunate that you have raised the parallel of British Coal practices in your written evidence. I said unfortunate because there can be very great conflict of opinion on that score. May I submit to you that the eventual destiny of the coal mines in Britain, as terminated by the Nationalisation Bill to-day, was advocated as long ago as 1918-19?

Answer.—Oh yes, even before that.

Question.—I am referring to the Sankey Report. Taking it further, the Royal Commission of 1925, or the various Acts in 1923, 1930 and 1938 ; all these legislative acts were put on the Statute Book not by the Labour Party but by the Conservative Party. So I think it is rather mistaken if you say that the Nationalisation programme is a part of a political programme.

Answer.—It is definitely one of the main planks of the last elections.

Question.—You have stated that State operation of Industrial units does not benefit labour, that it means a drop in efficiency. Is it your opinion that labour today in the coal mines is drawing the maximum advantage possible, or is it also your opinion that efficiency is at top level?

Answer.—No.

Question.—I suggest to you that because labour was not drawing its maximum advantage, because there was a drop in efficiency, the nationalisation programme was put through in England.

Answer.—Our suggestion is : see the results before attempting anything here.

Question.—You have also referred to the drop in efficiency which happens when the State steps in. Surely, you can't compare the coal industry with the telephone service.

Answer.—But we thought it was most striking.

Question.—Efficiency, after all, is a relative criterion.

Answer.—We have the case of the railways, which have become increasingly less efficient.

Question.—You have suggested " If there were obtained a combination of profitable prices and individual enterprise, this industry will keep on flourishing". Combination of profitable prices ? Surely in that significant expression, you are asking the Government to play a certain role ?

Answer.—No. Except merely paying a fair price for the coal.

Question.—You are expecting Government to see that you get profitable prices?

Answer.—Quite. But we do not ask them to undertake the burden of running the industry.

Question.—Is that socially justifiable today?

Answer.—We think so naturally as capitalists.

Question.—Is it correct to say that the recovery of the coal industry during the years 1943, 1944, 1945 is a true indication of efficiency?

Answer.—I think we have been able to maintain production with nothing except our bare hands. Certainly there was very little machinery. When there were strikes all over the world, there was no strike in the coal mines in India. That must be a tribute to the efficiency of its management.

Question.—Were not these results achieved primarily because of Government controls or Government action ?

Answer.—I suggest they were achieved by the trade itself.

Question.—Why was the control considered necessary then ?

Answer.—We suggested that they should maintain the price of coal at a proper level.

Question.—When was the last strike in the coalfields ?

Answer.—In 1937 or 1938.

Question.—In your opinion Government machinery and Government controls played only an insignificant part in the recovery of the industry ?

Answer.—I should put it this way : The industry was able to guide Government on the right lines. All that we needed was their authority.

Question.—I would not like to pursue the subject. I could give you dozens of examples where the State operation of mines has increased the OMS of the miner and not only production, but also quantum of production. Take the case of Holland, take Germany, take Poland.

Answer.—Our general view is that Government machinery is not flexible enough to control such an industry as coal. That is really our main plank.

Question.—Would you agree generally that in an industry like coal, which deals in a wasting asset, the incentive to take a long view is weaker than in a manufacturing industry?

Answer.—No, I would not say that. The reverse is the case, because in mining, one has to take a long view. Otherwise, you don't go far. The big collieries that are now running are there for over a hundred years. In the main, it is impossible for anybody with any sense to take a short view of mining, because you have incurred capital costs. Therefore, you must look 30, 40, 50 years ahead. If you are working a quarry you can take a short term view, for after working it for a year or two, you can shut it up, because you are not sinking any money in working the quarry by way of capital equipment.

Question.—Reverting to your request for profitable prices and individual enterprise, would you call it a matter of right that private enterprise should be enabled by State legislation to cover its cost and secure an adequate return on capital?

Answer.—The answer is 'yes', provided the industry does not exploit Government.

Question.—If so, should the industry not become subject to some form of social control?

Answer.—In point of fact, if private enterprise will continue—we think it will—there may be control as it exists to-day.

Question.—You have stated that all you want from the Government is a sympathetic approach to problems of the coal industry, problems like transport facilities, assistance in securing a stable labour force, assistance in stowing, fixation of price for Railway coal purchased in a certain manner, and then you go on to say that were all these given to you, under private initiative, the industry will produce all the coal that the country requires at a reasonable price and with efficient methods of extraction. What sort of guarantee do you offer to the State in return for this assistance to you?

Answer.—It is already stated.

Question.—That is, a guarantee in regard to a reasonable price, scientific and efficient method of extraction? Is it guaranteed that extraction will not lead to reckless waste of the resources of the country: that you will not raise your price unduly high? Are you prepared to agree to some sort of control in these two respects?

Answer.—Well, I should think we are prepared. We have given a rough indication how you could achieve that.

Question.—You agree that in order to be able to achieve not only maximum output, but output got in an efficient manner and in a scientific manner and to sell to the consumer at a reasonable price, all the units of production must be in a healthy state. If there are black spots, you will have no objection to the State stepping in to remove these.

Answer.—No. That could be done by the enforcement of Mines Rules.

Question.—I am thinking of black spots like uneconomic working and uneconomic holding. Can private initiative be left to take charge of such a state of affairs? Take the case of Tisra mentioned in the 1937 Report.

Answer.—I think so, because it is again a question of survival of the fittest.

Question.—Tisra is still in the same condition as it was in 1937.

Answer.—Not quite in the same form. It has passed through various hands.

Question.—Your opinion is that it should be left to private initiative to look after such things?

Answer.—We have no objection to some form of control particularly on the mining side, if the committee wants to strengthen mining law where necessary.

Question.—One of the consequences of making mining regulations rigid will be that some of these collieries will be forced to close down. That will have a serious effect on the total production.

Answer.—Then I think your Chief Inspector of Mines and the Mines Inspectorate should give some latitude.

Question.—If private initiative does not come forward to rectify these defects would you give any latitude to the Government to step in and rectify them themselves?

Answer.—I think so in co-operation with the trade.

Question.—How would you define that?

Answer.—All you need is an advisory body.

Question.—Looking at this problem from another angle: if the interest of the nation requires a limit on production of certain types of coal, that may mean closing down certain collieries or limiting production in certain mines. Would there be a case for compensation?

Answer.—Certainly.

Question.—You rather agree that in such cases the State should step in and operate them.

Answer.—Not operate.

Question.—If there is going to be a limitation on production of certain types of coal, which means drastic cutting down of output of particular mines, in that event is there no case for compensation and if there is, is it not a better and more acceptable course that the State should acquire that mine or mines?

Answer.—It is very largely a technical matter.

Question.—From the point of view of a particular mine, it should be acceptable to you that the State should take over the complete responsibility.

Answer.—As I said it is very largely a technical matter but Govt. should not acquire it. They should say “we will put you into cold storage”.

Question.—When such restrictive schemes are put into effect in the matter of tea, jute, sugar etc. where units of production are curtailed from season to season and year to year, those units claim no compensation from the State or the controlling authority.

Answer.—If the Government had to impose on the coal trade restriction in output as was done in other industries it would have to create a pool of producers. This is done in other industries and there is no compensation. It is mutually agreed that the prices should be enhanced and an industrial pool is created.

Question.—Mere restriction of output does not necessarily mean that there is a case for compensation.

Answer.—No.

Question.—Generally if the restriction is on one colliery, compensation should be paid for the coal, but if the restriction is on the production of one type of coal and if the restriction is on the whole industry, then you need not pay any compensation.

Answer.—Take the steel rolling mills. When coal was short, they were restricted voluntarily by arrangement among themselves and they pooled the coal on that basis.

Question.—In what way do you think nationalisation would affect the efficiency of the staff?

Answer.—Surely, if any question of State control comes in, unless all the existing technical men are willing to be transferred and become employees of the Government you are not going to have any technical personnel.

Question.—Might I interpellate that one of the reasons given by a very responsible person in England for the nationalisation of mines was that 1/4th of the 2,000 Directors in the Coal Companies did not possess any technical knowledge? That is why the Government was forced to take over.

Answer.—My point is there are not sufficient technical men available. Unless the present technical men are willing to join Government service it will I think be very difficult to carry on.

Question.—Why should the Government not take over the different concerns as going concerns with all the staff?

Answer.—It is left to the individuals concerned.

Question.—You don't seem to favour nationalisation of the coal industry in India whereas nationalisation of the coal industry has already taken place in Great Britain. Are the conditions in the two countries materially different in regard to the coal industry?

Answer.—There the mining was started three centuries ago. Conditions here are different from those in Great Britain as regards mining methods.

Question.—Are you in a position to tell us what have been the production trends in U.K. since the introduction of the Nationalisation Bill?

Answer.—I have a box-full of information.

Question.—Have you figures?

Answer.—Yes, I can let you have them.

Question.—You believe in private enterprise?

Answer.—Yes.

Question.—But if it no longer remains an “enterprise”? Could you name from your own experience, as a group of forward-looking coal producers, instances of “enterprise” in the last twenty years taken by your industry? Would you call them really “enterprise” in the strict sense?

Answer.—Yes, I think so. Definitely we have been the Cinderella of industries, but the Coal Industry affords an example of development in this country more rapid than that of any other Industry.

Question.—I should like to ask your opinion about the recommendation made by the Land Revenue Commission of Bengal in 1940 about the acquisition of mineral rights in Bengal. Perhaps I might refresh your memory. The recommendation was:

“We should like to recommend that Government should consider the desirability of legislation declaring that all minerals including oil not yet worked or discovered will vest in the State”

without any compensation being paid to the owners.

Answer.—Naturally, I think, we would be opposed to that.

Question.—It relates to minerals not yet worked or discovered.

Answer.—A line should be drawn between minerals not worked and minerals not discovered so far as compensation is concerned.

The act of Government taking over properties or mineral rights already owned and proved without compensation will be a very grave act of injustice.

Question.—I appreciate your view point that in respect of properties which are being worked today, the acquisition by the State of those properties or mineral rights without paying any compensation will, in your opinion, be an act of expropriation. In regard to minerals which are not discovered, which the owner does not know, would you consider acquisition by the State of such undiscovered mineral as an act of expropriation?

Answer.—I am not speaking of minerals not discovered. A line must be drawn between minerals already privately owned and proved, and mineral not yet proved by the existing royalty holder.

Question.—I should like to draw your attention to the significance of the work royalty. It was something pertaining to the Crown. It did not pertain to the individual.

Answer.—In the case of undiscovered minerals, I agree that there may not be a case for compensation, but in the case of discovered minerals, expropriation by the State, I think, would be unjust.

Question.—Now turn to question 17. if I understand your statement correctly, in your opinion a Central Marketing Agency is cumbrous, discourages expansion and interferes with the existing channels of trade.

Answer.—Yes : that is so. Further : Price fixation allied to Government controlled distribution is unnecessary in normal times.

Question.—Could you tell me whether you agree with me that the success or failure of the scheme which you have suggested to us depends upon the division of types of coal adopted by the Railway Board ?

Answer.—You mean the purchasing policy in regard to good coal and inferior coal and so on ?

Question.—The context is the scheme which you have proposed. The question is whether the success or failure of it does not depend on the division of types of coal as adopted by the Railway Board ?

Answer.—No. Certainly not.

Question.—Please turn to page 32 of the Annexure to your evidence, para. 278. The concluding sentence reads " This might however result in many collieries receiving orders for less even than 5,000 tons each and this we think is not desirable ; the issue turns on the division into types adopted by the Railways. . . Surely, it is not your suggestion that small collieries should be done out of practically every Railway business ? Unless provision is to be made for the satisfaction of claims by small collieries within the types of the Railways, your suggested system would fail on this particular issue of division of types.

Answer.—No. I don't think so. In your original question you asked whether the scheme would fail on the question of the quality purchasing policy of the Railways. I think not.

Question.—Although you agree that it may adversely affect the small collieries ?

Answer.—Might adversely affect some of them. May I refer back to the end of para 277. "... if prices are maintained on a proper economic level 5,000 ton contracts should be an adequate minimum for a small colliery, and they have the merit of permitting a larger number of collieries to participate in the Railway business, thus eliminating to a great extent a possible objection on sellers' part to the abolition of competitive tenders".

Question.—I took this statement to be qualified by the following statement in paragraph 278, if there is a danger of inequity towards collieries who are producing or who claim a share of 5,000 tons in the Railway contracts.

Answer.—No. I think 5 to 10 thousand tons is put merely as a round figure, on the assumption that a contract which is less than 5,000 tons will be of no interest to anybody.

Question.—It is of great interest to small collieries.

Is it your suggestion in the scheme proposed by you that complete discretion be left to the Railways about the division into types of coal they require ?

Answer.—Yes. They are the purchasers.

Question.—Will you, under those circumstances, explain the statement in para 266 figures of merit on which the Railway purchases were based. The para states : " These figures and the conditions under which they were ascertained are unknown to anyone but the Railways themselves, and mystery therefore still surrounds the actual allocation of contracts. So long as this continues, there is likely to be dissatisfaction over the list of acceptances".

Answer.—Yes. That is the whole system and we have explained it there. We have said " It seems evident that a more desirable course to adopt is to allocate the contracts so openly that each tenderer can see for himself that he has received fair treatment".

Question.—There is the Railway Board which is given full discretion in determining what type of coal they require. You agree that discretion should remain with the Railways ? The very full discretion which you are prepared to give to the Railways formed the subject matter of a complaint in 1938 and on that complaint you have devised your scheme.

Answer.—Yes. It is rather a broad statement. The complaint has been the method under which the Railway Board used their powers as the largest producer in the country and as the largest consumer as against the commercial collieries.

Question.—Surely, if they are given full discretion in determining the types of coal they need, how they arrived at the figures of merit was of the complaint and this complaint regarding distribution of tenders will still continue.

Answer.—If the Railways do not also have the power to fix the prices which automatically affect the whole market then there is not nearly so much interest amongst producers as to whether their coal is accepted by the Railways or by other customers. If the Railways buy at a price which is fair and economic to the industry, then it can be expected that the general market level will be about the same.

Question.—I appreciate your point, but it is a half measure. Won't you go a little further and say there should be some independent body telling the Railway Board what type of coal they should use ?

Answer.—The Railway Board is well equipped to decide what type of coal it requires.

Question.—Then it is a commercial proposition and they are acting generally on commercial lines.

Answer.—That would apply if they did not own their own collieries and use them against the trade.

Question.—The I.M.A. proposal amounts to maintaining a higher level of coal prices all round ?

Answer.—Definitely.

Question.—May I interpret it as meaning that you are asking the Railways to pay more in order to maintain a higher price level ?

Answer.—Not necessarily. They would pay more, because of the effect on the market. It merely means one gets a fair economic price for all coal purchased by the Railways.

Question.—What I want to know is the practical implication of your proposal under circumstances where the coal prices are admittedly higher than what economic considerations justify.

Answer.—I think the answer to that is that the industry indicated to Government what was the economic and fair price for coal. It was very much lower than what either the markets were willing to pay or the Railways were.

Question.—That was the scheme devised when prices were absurdly low. I grant you that a procedure like the one you have suggested would have led to the establishment of a better price and a more economic price, but under circumstances when the price of coal has gone up very high and all the commercial firms are making good profits, will the Railway Board have any means of getting their coal at lower prices which are justified by economic circumstances.

Answer.—Yes. At the top of page 20, there is "the method was that a body should sit each year to decide fair price for the Railway tenders and that thereafter invitations to tender should be issued for specified quantities at the arranged prices. We suggest that a permanent Committee representing Government, the Railways and the trade should be set up to fix these prices and possibly prices for similar Government business".

Question.—Surely in a body of this type that is composed of the Government, the Railways and the trade, the trade element has advantages in the sense that it knows the trends in that particular industry and, therefore, would be better judges of what the economic level is. Will they be so self-forgetting as to agree to the lowering of prices if the current level is not justified ?

Answer.—They would not cut their own throats. The Railways themselves are the biggest producers and consumers of coal and should have a broad knowledge of the market than ourselves.

Question.—In your scheme you have found the possibility of the indirect price control as proposed by you to fail for example in the event of over-production. You say, in effect, that in case of potential over-production, there should be applicable an automatic quota allotment under a system of wagon allotment. The impression left on my mind after reading your Memorandum is also that in the case of shortages, you will be agreeable to the continuation of a system of controlled distribution and price fixation. So when there is

over-production, apply automatic quota-allotment when there is under-production, apply controlled distribution. It is only when everything is rosy and swimming nicely, then only should your scheme be brought into force.

Answer.—The main object of the scheme was to prevent the disastrous consequences of the previous 10 years.

Question.—Is your method of automatic quota allotment feasible without some sort of control over distribution and prices ?

Answer.—If the Railways control wagon allotment, that is automatic control. They decide what portion of your production should be despatched by controlling the allotment of wagons. That automatically controls the despatch of coal from your collieries, and this in turn automatically restricts your raisings.

Question.—Is not control of prices necessary ?

Answer.—Provided, of course, as we have suggested, there is a permanent Committee. We have suggested two things : One is that of fixing the prices for railway tenders ; the second is, if there is over-production, to avoid a slump the economic conditions can be regulated by the supply of wagons.

Question.—Could you project your thought to the future and assume that your scheme has been working for some time ? Does it necessarily follow that the prices fixed for Railway tenders would normally tend to become the minimum prices for coal of those types ?

Answer.—Yes, I think so. The railway prices will be the yard-stick for the market price.

Question.—I believe your scheme does not exclude resort by the Railways to their own collieries.

Answer.—Winning of coal ?

Question.—In case of difficulties, I believe, you used the word that the railway collieries' reservoir may also be 'tapped'.

Answer.—Quite.

Question.—But you are suggesting that before the Railways decide to tap this reservoir, they should gauge or make an accurate guess of the trends of production all over the coalfields in India.

Answer.—Yes.

Question.—I assume that some sort of an assessment or gauging will need to be done before the tenders are issued.

Answer.—Yes, I think that is done now.

Question.—You expect the railways to perform this sort of meteorological survey for the industry.

Answer.—We will gladly give information. In the past, they have not co-operated. That information was always available to them.

Question.—The suggestion to reduce the output of Railway collieries to the minimum is meant, I assume, for the purpose of benefitting the rest of the coal industry ?

Answer.—Not only the coal industry but also other industries.

Question.—Would you reverse your suggestion if the railway collieries were to work on a co-ordinated programme of output and development just like any other commercial concern and compete with other commercial concerns in the matter of supplying coal to the railways ?

Answer.—Well, there is the question of loss in taxation and there is the question of finance.

Question.—You would not agree even if such State-owned colliery units were divorced from the Railway Administration ?

Answer.—In other words you would take them away from the Railway Board and work them as commercial collieries and make them pay the same taxation, cesses etc. as other collieries have to bear ?

Question.—That is, taking with one hand and paying with the other ?

Answer.—When supply and demand more or less balance it does not matter very much. The trouble arises when supply exceeds the demand and as you may recall during the last 10 years the existing policies effected so much that many small collieries were weakened and had to go to the wall.

Question.—Surely, it is not your suggestion that, in the struggle for survival of the fittest, instead of weak collieries going to the wall we should have the railway collieries sent to the wall.

Answer.—We are not suggesting that. The State Collieries should also come in the open market for sale of coal.

Question.—By that you mean that the railway administration can be divorced from the railway collieries.

Answer.—If they were handled commercially, then they would also have to pay taxation, cesses, etc. precisely in the same way as the industry, and pay interest to the Government for financing them.

Question.—You have without reservation declared yourself against the establishment of a Central Marketing Agency, whether formed voluntarily by the trade or under Government aegis. I put it to you that the Central Marketing Agency might confine itself to two or three functions, i.e.,

- (i) publicising the qualities of various coals and encouraging the use of certain types,
- (ii) assisting in making pooled supplies to a group or groups of consumers in an area,
- (iii) enforcing any regulations as to use which may be deemed necessary,
- (iv) avoiding the troubles that might arise from cut-throat competition and a system of middlemen.

Now these four functions are quite distinct and separate from the functions of the fixation of price and allotment of quotas. Do you agree if the Central Marketing Agency were confined to the performance principally of these functions, it will do good to the industry ?

Answer.—Except the last one point. But we think that in the structure of the trade, the function of the middlemen, and so on and so forth is established.

Question.—Efficiently ? Surely somebody in the service of the Government of India must have been impressed by the inefficient factor in the coal industry—which is responsible for the constitution of the present Committee.

Answer.—I suggest the reverse. The industry pressed for it due to Government's inefficiency in handling the industry. Various functions are covered by a Marketing Agency but I want to point out two points which should go in—the question of fixing prices in conjunction with Government and the restriction of over-production which is a serious bug-bear.

Question.—Certainly I would not include those functions.

Answer.—Outside these there is no necessity for control.

Question.—You have mentioned that there has been established recently a very close co-operation between the various sections of the coal trade. Could you give us some specific details on that point ?

Answer.—We have some members of the trade on the Coal Advisory Board which works quite well. On receipt of your questionnaires we did our best to give you the considered reply of the whole industry. Of course in the first questionnaire we could see eye to eye on all points, though in the second questionnaire we differ materially on one or two subjects.

Question.—Is it your opinion that some sort of a permanent or enduring co-operation is possible between the producers of high grade coal and low grade coal ?

Answer.—Definitely, provided our scheme is adopted and you can do away with the bug-bear of excess production and cut-throat competition.

Question.—You don't agree with my interpretation that success or failure depends upon the division of types of coal which the railways may require ?

Answer.—No, I don't think so. It might have a slight bearing but no more.

Question.—This newly discovered co-operation between the producers of high grade and low grade—is it not really the result of circumstances created during the war, of action taken by the Government—various methods of control and distribution ?

Answer.—No. It actually started before the war or in the very early days of the war.

Question.—What I refer to is this : the consumption of different types of coal without any discretion left to the consumer would favour co-operation between the different sets of producers. With this control disappearing, what are the chances of this co-operation continuing?

Answer.—If the measures we have suggested are adopted the industry will be in an equivalent state, the object on the different producers is the same viz., they want to sell their coal at a fair price.

Question.—There was no such co-operation before 1942 ?

Answer.—To a limited extent certainly. It depended entirely then on the amount of coal lying at stock and on the policy of the Board.

Question.—There is a possibility of the old state of affairs reverting after the control is removed ?

Answer.—I don't think so.

Question.—You don't think the machinery like the one proposed for the Central Marketing Agency would be of any help ?

Answer.—This brings about nearly the same results.

Question.—You have expressed yourself in favour of a device which would aim to fix prices for coal consumed by the railways. You have agreed that all prices for the types of coal wanted by the railways may become the minimum prices for the coming year. So, inherently you have no objection to price fixation of a limited degree.

Answer.—In fact we suggest that prices should be fixed in consultation with the biggest producers and biggest consumers.

Question.—You would think it desirable that a similar device be adopted for fixing the price of coal consumed by the steel companies ?

Answer.—Well, there again automatically they are.

Question.—Are you aware, that in almost every coal producing country in the world some sort of marketing agency has been in existence over a number of years.

Answer.—Yes, notably in South Africa.

Question.—Would you object to the establishment of a similar agency in this country ?

Answer.—In point of fact, we have a marketing scheme of our own.

Question.—I think you stated that you don't consider it desirable to have a central marketing agency.

Answer.—We think it is rather unnecessary. We consider the trade as such that it is capable of marketing its coal.

Question.—Your opinion is that matters should be left to remain where they stand at present.

Answer.—Yes. That is the idea. I think the whole matter can be handled commercially.

Question.—In question 18 you have suggested that the thought behind regulating the use of coal presupposes that there are existing or anticipated shortages of certain classes of coal. May I point out that there is one very important feature : namely the proper utilisation of the resources of the country ? That feature may demand irrespective of the reserves in the country some sort of regulation of use.

Answer.—Well, we have said that we would oppose direction in the use of coal as it would constitute unjustifiable interference with the internal economy of those industries forced to use the type of coal not selected by them. That we have adhered to. We do not feel that any one particular industry has a claim over another industry to a coal.

Question.—Even if the consumers show preferences ?

Answer.—Then they can get that coal by ordinary commercial methods.

Question.—Regulation of the use of coal presupposes a very careful analysis of the different type of coal available in the country. It also presupposes a continuous research in the various methods of utilisation of particular kinds of coal. If the State is prepared to render that service to the consumers, the consumers may well be entitled to ask the Government to go a bit further and offer them the sort of coal that will be useful for their specific purpose. Then again the Government might be conscious of not wasting this national wealth irrespective of the quantity they possess. There is the case for regulation of use of coal. Would you still object to some sort of steps being taken in this direction ?

Answer.—It is a matter for the consumer rather than the producer. If I were a consumer I would strongly object to being compelled to use a lower grade coal for the plant which I have financed so as to use first grade coal. It has a most important bearing on the economics of the country.

Question.—There has been a controversy about the reserves of coal suitable for metallurgical purposes. You have not expressed an opinion in regard to the quantum of reserves but you have stated in Question 46 that you do not think it necessary to impose any restriction on the use of metallurgical coal. It is admitted that coal of a certain seam, certain type, or certain analysis is best suited for metallurgical purposes. Surely you do not want to go so far as to say that that coal may be allowed to be burnt in brick kilns ?

Answer.—No, I would not suggest that the brick kiln should burn it. But I do suggest that, say, the Railway, carrying coal a thousand miles, might consider that coal to be of importance.

Question.—Might I look at it from another angle ? As long as the present shortages continue you agree that the present controls should also continue ?

Answer.—Yes, in the interests of the country.

Question.—When the shortages disappear and there is ample supply of coal available will there not be a tendency to use say first class coal for C grade work ?

Answer.—I think the answer to this is if the consumer can afford to pay for a higher grade coal he may do so.

Question.—Is it desirable from the national point of view ?

Answer.—Well, if you are faced with a grave shortage of metallurgical coal, you should have some restriction.

Question.—Your opinion is that if you are not faced with any shortages, i.e., there is plenty of coal, then there should be no attempt made to restrict the discretion of the consumer in regard to the type of fuel he should use ?

Answer.—No, I think he should have that freedom.

Question.—It has been suggested to us by certain consumers that a system similar to the grading of coal for shipment purposes should be introduced for coal used internally and if there are any extra costs the consumers are willing to them. Do you think that is a workable suggestion ?

Answer.—Well, in this country it is very difficult to get people of great honesty of purpose, so far as this business of sampling wagons is concerned. Quite frankly, if you pay say Rs. 100/- you get your grade of best coal and so on. I only suggest that there is a temptation to the low paid people.

Question.—Are you casting any aspersion on the Coal Grading Board ?

Answer.—Certainly not.

Question.—On the Railway Administration ?

Answer.—I will not say that but there should be highly trained technical people who should be paid well.

Question.—I want to know whether the type of coal which I am getting is according to my specifications. I want some sort of authority to tell me at the time of shipment of coal that that is according to the specifications I want. I want a certificate from a duly constituted authority on those lines and I am willing to pay for it.

Answer.—I suggest you would rather have it from a qualified firm.

Question.—What is your serious objection ?

Answer.—We do not have any serious objection at all. It has a practical implication, as you have to analyse the wagons that bring your requirements. We have no other objections, since obviously we wish to sell coal on quality.

Question.—You have expressed the opinion about zoning that you are not in favour of the adoption of this system, which you call a severe restrictive measure in peace time and that on grounds of quality alone it would probably be impracticable of operation. Surely, the suggestion in respect of zoning implies nothing more than

that particular areas of the country should depend on local coal deposits. This does not preclude other kinds of coal which are not available in a local zone, moving to other areas

Answer.—Normally when a man establishes his works, the first thing he looks for as a big fuel consumer is the location of his fuel.

Question.—This zoning is suggested purely from the point of view of transport. In fact, the same machinery is prevalent in some other countries.

Answer.—Yes, in fact it may operate elsewhere.

Question.—You will have no objection, I assume, if the mills in Ahmedabad requiring ordinary run-of-mine coal for firing their boilers, were restricted by some machinery, to the use of coal produced, say in the Central Provinces ?

Answer.—Yes, we do object. We maintain that the consumer should have the freedom to buy his coal.

Question.—He has the freedom. A zoning system might be worked on the basis of freights.

Answer.—You penalise the consumers.

Question.—No. We intend to make the best use of the resources of the country for the best purposes.

Answer.—I think you may upset the economy of the industry. If the fuel to be used is such an important item, certain industries would have to go out of the zonal area to other collieries to get that special type of coal. They should not be penalised.

Question.—We only emphasise that metallurgical and other special coals should not be used where lower grade of coal fuel can be equally efficiently utilised.

Answer.—We cannot accept that statement that lower grade coal can be equally efficiently utilised. You can use it but not as efficiently as other grades. You have to carry so much percentage of ash and you don't get your calorific values.

Question.—Zoning of the type we have in mind is not uncommon.

Answer.—Yes, such limiting conditions exist in different parts of Great Britain under ordinary commercial activities. The system there penalise a man who wants Sheffield type coal when he is allotted from the Derbyshire zone.

Question.—The zoning system has also successfully worked in Germany before the war. You have expressed yourself against the suggestion for a pooling of rail freights in order to keep the price of coal at various centres at the same level. I should like to know whether your Association is aware of the declared policy of the Government in respect of regionalisation of industries.

Answer.—I have read a good deal about it.

Question.—If an individual wants to start an industry of a particular type, it is reviewed before permission is given to start it and location is one of the prominent features of that review. If it is the desire and the declared policy of Government to aim at dispersal of industries, surely it is also obligatory on the Government to see that that dispersal does not provide for any special economic disadvantage in respect of supply of raw-materials including fuel.

Answer.—That is a matter for the Government. That is not exactly within our purview.

Question.—You are also against fixing of railway freights in a differential manner, that is according to the quality of coal.

Answer.—Yes.

Question.—Are you aware that this practice is in force in the U.S.A. ?

Answer.—No. I am aware only of regulations put through in the early days, most of which have been done away with.

Question.—Will there be justification for this sort of differential freight system in the event of Government finding that an impetus is necessary for an increased use of lower grades of coal ?

Answer.—Well, we should probably have to study the law of undue preference.

Question.—Do you consider the present freight rates reasonable? Or are they excessive ?

Answer.—I think they are reasonable. Please see our reply to question 25.

Question.—Don't the present telescopic freight rates give an undue incentive to long lead traffic. For instance, the freight per ton for 400 miles is the same as the freight per ton for 740 miles.

Answer.—Really the consumer is more concerned than we.

Question.—This question assumes prominence again in view of the Government decision about the location of industry. There is no particular inducement to the consumers of fuel on this score to locate his industry, say, at a distance of 500 miles in preference to a distance of 740 miles ; the freight is the same for him between 400 and 740 miles.

Answer.—I think it is really more for the Railway Board to answer. They know more than we do.

Question.—Question 29 : You have expressed yourself against a scheme of Government controlled prices. Can we assume that the Association has arrived at this conclusion after very full consideration of the history of the Indian coal industry? Your own experience, and practices in other countries.

Answer.—Yes, I think that question 17 gave us more food for thought than the rest of the questionnaire.

Question.—You are quite sure that it is not dictated by consideration of *laissez-faire* ?

Answer.—No, we considered carefully. The scheme put forward in 1937, slightly modified here, would operate successfully.

Question.—If your scheme as proposed in section 17 is found unworkable on the basis that it may be unduly discriminatory, would you still advocate that efforts be made to introduce stability in the price level ?

Answer.—Efforts should certainly be made. I do not know quite how we would arrive at them, but it is essential.

Question.—We have made a future estimate of the coal requirements of the country, and it is based on the assumption that industrialisation in this country will keep on making more and more demands on the fuel resources. It may be that the growing industrial demand may require as much as 40 million tons of coal in the course of the next five or ten years. Can you tell me whether the industry is capable of meeting that demand ?

Answer.—The industry can, but the bottle-neck is transport. I can say that we have all got development plans in hand to produce 32, 34, 36 or 40 million tons.

Question.—Is it reasonable to assume that the industry can produce or can meet this growing demand and that the other bottle-necks like transport may create a lag in production ?

Answer.—Definitely. In fact, they are doing so now.

Question.—In view of the pressure for supplies, are you still of opinion that the scheme devised in 17 will provide the stability necessary in the matter of prices in such a market ?

Answer.—Yes.

Question.—You should not forget the consumption of railways *pari passu* with the increased use of coal in other industries.

Answer.—No.

Question.—The area of competition in regard to the supply of coal will grow wider and wider.

Answer.—Yes, if you foresee this industrialisation, the railways will certainly consume a lot of coal. It is a principal factor.

Question.—I should like to ask what are your practical objections to the proposals to fix prices ?

Answer.—We have said that the system of price control by Government now in force has on the whole proved quite satisfactory, and we have no objection in principle to Government having the power to control prices. We do not however think it necessary in normal times for Government to have this power.

Question.—Surely, coal may be a peculiar industry, but in the last 200 years, attempts have been made all over the world to control prices by some method or other and not to leave it to the unfettered play of supply and demand.

Answer.—But I think, in fact, in other countries, that has been accomplished by the trade itself.

Question.—I am not suggesting that Government should control prices. If there is no

inducement for the producers and consumers to get together and provide stability to the coal market as is the experience of the last 25 years then the Government must step in and do the job.

Answer.—We have no objection in principle.

Question.—I should like to put to you the history of the coal industry in the U.K. I think the first scheme for allocation of output quotas and fixed selling prices was adumbrated in 1771 and ended up with the latest plan put forward by Mr. Foot which also aims to eliminate price competition. The same is applicable to the history of prices in Germany. Even in the States, the home of free competition and private enterprise, even there, the coal industry is split up into what they call the minimum price areas. It may be peculiar to the coal industry. Has the Association given any thought to this peculiar feature which has necessitated control over prices in other countries ?

Answer.—We certainly considered it, but we feel that, after all, coal in this country is nothing compared to the States or Great Britain or Germany. The production here is only about 25 million tons and there are very few large consumers. I do not think that it is a parallel to other countries like U.K. or U.S.A. Again, as a domestic fuel, it is unimportant.

Question.—Do you mean to say that India stands by itself in its peculiarities and the experience of other countries is of no benefit to us.

Answer.—Our neighbour is China. Much the same conditions as in India prevail there.

Question.—Is India such a peculiar country that we should provide an exception ?

Answer.—It is rather peculiar. As domestic fuel coal is very unimportant. The output of the country is relatively small. I suggest those conditions might arise when India is producing 50 to 100 million tons. Domestic fuel, of course, of the European countries and the States is a very important factor.

Question.—My impression is that the relative distribution and coal consumption of the various types of consumers is almost the same in India as in other countries.

But are there any peculiar features in the Indian coal industry which would compel us to adopt the policy of *laissez faire* in this connection ?

Answer.—Well, this country is not yet highly industrialised. That is one answer.

Question.—The States were not industrialised in 1717.

Answer.—No.

Question.—Question 33. You have suggested a margin of profit of 15 to 20%. That large figure is adopted because coal is a wasting asset ?

Answer.—Yes, and also the interest provision as a large element of risk is involved.

Question.—Dangerous to the coal owner or the coal cutter ?

Answer.—One's is money and the other's is life.

Question.—Would you agree the proper course is to work up the reasonable wages for labour instead of reasonable interest for capital ?

Answer.—Well, one would follow the other. After paying the labour we do not earn what we are capable of earning on the capital. That is the position.

Question.—Do you think there is a case for continuing with middlemen ?

Answer.—Yes. We think he fulfils certain functions.

Question.—Would you tell me the reasons why you have recommended a commission of Re.1/8/- generally to an agent ?

Answer.—These are the rates fixed by the Coal Board.

Question.—They are not necessarily justifiable ?

Answer.—We consider it more than adequate.

Question.—Generally you have fixed As.-/6/- per ton whereas it was one or two annas in pre-war days.

Answer.—No. It was two annas up to Rs.5/-, 4 Annas up to Rs.10/- and above Rs.10/-, six annas on Selected Grade coal.

Question.—Are you as producers quite convinced in your mind that they have a place in the development structure of the industry ?

Answer.—Definitely.

Question.—Would you not rather substitute a well-organised Central Marketing Agency ?

Answer.—We have considered that very carefully, but we think not.

Question.—Question 35. I do not understand your reference to the incidence of the Road Cess based on profits. It works in such a manner that when profits are rising the rate of tax is lower and then when profits are falling they are rising.

Answer.—In Bihar cesses are collected on despatches and profits, and in Bengal I think it is only on profits. They calculate cesses on the average of the previous 3 years so that if prices are falling and profits are dropping your cess is higher than it would be if it were based on the position today.

Question.—Could you explain what you mean by the statement that a very large proportion of the industry's capital expenditure is represented by the cost of purchasing mineral rights ?

Answer.—That is the salami you pay for your property.

Question.—And yet you don't advocate that the salami should be abolished ?

Answer.—No, I don't think so. If we assess the value of the property, we pay for what we think it is worth.

Question.—Your Association wants some sort of an adjustment to be made in the matter of taxation. Yet when you are paying too much for purchasing mineral rights and when I suggest to you a way in which your costs can be reduced you don't agree with me. You want relief only through taxation.

Answer.—Yes, we think we are being very logical there. We pay for what we think it worth and as coal is a wasting asset we say that we should be entitled to depreciation on the property which in fact disappears day by day. I am not quite sure whether they have put it in force in Great Britain, but they have certainly taken it into account for relief on E.P.T.

Question.—You make a statement that all seams in the Jharia coalfield are coking. You mean to suggest that all seams from 1 to 18 ?

Answer.—Definitely, 1 to 18.

Question.—Could you substantiate that by records of analysis done ?

Answer.—I think it is a long time since we had all seams analysed but nevertheless the structure is coking.

Question.—You have suggested in question 44 that coke with an ash content of 28 to 30% could be used satisfactorily in the blast furnaces in India. Have you any grounds for making that statement. Is it the result of some specific experiments carried out by you ?

Answer.—No, but it is a matter of calculation.

Question.—28 to 30% of ash content in the coke means about 22% ash in the coal.

Answer.—Yes.

Question.—I give you the statement of a consulting Engineer presented to us that the maximum tolerable percentage for Indian coal in the blast furnaces is 15 % ash. That is the dead line for ash.

Answer.—This is the list issued by the Coal office for despatch to Tata and the Indian Iron & Steel Company.

Question.—It may be that they have no choice. But the technician tells us that if you use coal with a higher ash content you hurt the blast furnace and you suffer in production.

Answer.—Production suffers but we are not concerned with the economics of the steel industry.

Question.—Your statement is subject to the proviso that it may be that the blast furnaces may suffer but iron could be produced. But you would like to withdraw the word "satisfactorily" from that sentence.

Answer.—No. "Satisfactory" means in the production of the pig iron, not from the point of view of metallurgical practice.

Question.—Surely the Association does not pose as steel experts. I have given the considered opinion of a well-known expert. You can use the coke but something must suffer.

Answer.—Production must suffer.

Question.—Production must or quality must suffer.

Answer.—Not necessarily. I would suggest that for many years the steel industry has been using coal with an average ash content of more than 15%.

Question.—Perhaps they have not been conducting efficient blast furnace operations.

Answer.—The average ash for the past ten years has not been less than 18%.

Question.—Surely, your statement that the best coal is the most suitable for the consumer should also apply to the steel industry.

Answer.—Yes, definitely.

Question.—In addition to Jharia, where you have stated all the seams are coking coals, are there any other coking coal deposits ?

Answer.—There are in Bihar and a lot of the seams in Karanpura are semi-coking and can be blended with Jharia coal.

Question.—Which of them do you consider possess good metallurgical coal ?

Answer.—The best are 12 to 18 seams.

Question.—Outside Jharia.

Answer.—Outside Jharia, Karanpura.

Question.—You have made no exhaustive survey on that score ?

Answer.—For twenty years we have been blending Karanpura coal. Tatas have also tested it.

Question.—Ramgarh and Begunia ?

Answer.—Yes.

Question.—Dishergarh ? Sanctoria ?

Answer.—Sanctoria does not make a blast furnace coke.

Question.—Shampur seam in Mogma ?

Answer.—Well, there again there is the question of ash.

Question.—What about Jainti ?

Answer.—It is about the worst.

Question.—On what precise facts do you base your opinion that the shortages of metallurgical coal have been seriously exaggerated ?

Answer.—Well, I have furnished you with some figures of reserves of coal down to ten seam and speaking only of that, they would keep the steel industry going at the present rate of consumption for 110 years.

Question.—Will it surprise you very much if I were to tell you that the estimates as presented in the 1937 Report of the reserves of metallurgical

coal more or less tally with independent investigations we have made from individual collieries ?

Answer.—Yes, but metallurgical coal 20 years ago is not the metallurgical coal of to-day.

Question.—Seams 14, 14A, 15, 17. These were considered good quality metallurgical coal. They are mostly being consumed ?

Answer.—Yes.

Question.—And today you may be able to use seams below 10 for producing coke for blast furnace purposes but you will need to blend it with good quality metallurgical coal ?

Answer.—There may not be any need to blend it but it is advisable to do so.

Question.—From this limited viewpoint the stocks of reserves of metallurgical coal in India are not unlimited.

Answer.—I would suggest that they would last at least for three centuries if they are blended with slightly inferior coal.

Question.—According to us the reserves of metallurgical coal in India today are in the region of about 600 million tons ; and assuming that you are given full liberty to extract as much as you like of that kind of coal for purposes other than blast furnace operations, would you still consider that six hundred million tons will be sufficient to last three centuries ?

Answer.—It depends entirely on what is to be the consumption in the future. In a century's time you might be using more coal than you are using today. In this vast country you can start even 1200 ton furnaces. If the furnaces are increased more coal will be consumed. Originally we started with 40 ton furnaces.

Question.—You don't consider the position serious enough for the Government or the industry to take any notice of it ?

Answer.—Definitely. It is a matter for the steel companies to take notice because they are primarily concerned.

Question.—You have made a statement that restriction on output from the Jharia coalfield should not be adopted until alternative supplies are available.

Answer.—It is necessary because of the present coal shortage. You cannot impose restrictions unless you can replace the coal from other sources.

Question.—So unless alternative supplies can be made available this scheme for restricted output cannot be put into operation ?

Answer.—It is possible but the consequences are unknown.

Question.—You have also indicated in reply to question 48 that it is not possible to close down the collieries completely. I should like to ask you when you advocated either the closing down or restriction of output in the Railway collieries, similar considerations did not weigh with you.

Answer.—The Railway collieries are getting large proportion of their output from quarries.

Question.—Your representative stated before the Bihar Sub-Committee that you advocate the closing down immediately of all the collieries belonging to the Iron and Steel industry and the holding of such coal in reserve, and you add that collieries belonging to the Iron & Steel industry could be maintained in good condition at very little expense as their collieries have all along been working scientifically. Surely most of the Jharia collieries under the control and direction of members of your Association are being worked scientifically. Therefore there should be no great difficulty in closing them down if necessary.

Answer.—Many of the Jharia collieries are sixty years old whereas the Iron & Steel Industry started only 25 years ago.

Question.—I would like you to give consideration to the opinions which have been given to us. I am quoting again from the Bihar Coalfields Committee Reports presented in 1942. First is the opinion of a geologist that most of the mines can stand closing down. Next is the opinion of Mr. Carver that the majority of collieries that may be required to close down could be closed down without suffering loss of coal. Next is the opinion of Mr. Harrison that 75% of the mines in the Jharia coalfield could be closed down and that collieries in this area have been closed down from time to time for long periods without being damaged. Would you still hold that it is an impracticable suggestion to close down some of the Jharia collieries.

Answer.—It is a question not of some but of most of them.

Question.—I ask you one question. Could you tell me in the matter of restriction of output or even of closing down the collieries whether you consider it justifiable that they should be paid certain compensation ? Or do you consider that it will be extremely inequitable and will be an interference with the rights of property if the Government were to ask you to restrict your production or to close down the collieries and not pay any compensation for it ? Could you tell me the basis on which such compensation should be computed ?

Answer.—Well we would require it to be worked according to each individual colliery and a possible way would be to determine the compensation on your loss of output, the result in increase in cost and the risk of losing a colliery entirely owing to fire etc. It is thus possible to work out some sort of a basis for compensation. But it will have to be done to each colliery individually.

Question.—Would you suggest, if a restrictive scheme is put into force, which alternative you would prefer—that Government should acquire the complete mine or let you remain in charge and pay more compensation.

Answer.—I think we will remain in charge and accept compensation.

Question.—In case it is held that no compensation is payable, you will prefer to get rid of it.

Answer.—We shall find a ready buyer.
SAND STOWING :

Question.—Coming to sand stowing, could you suggest a procedure which should be followed in determining that sand stowing is necessary for grade I and above in order to ensure extraction.

Will it be your opinion that we should place the responsibility on the Chief Inspector of Mines ?

Answer.—In certain cases stowing being uneconomic the Chief Inspector of Mines may give exemption. But in most cases, in order to get the maximum extraction of Grade I and above coal, Government should assist in sand stowing.

Question.—You will have no objection to discretion being left in the hands of the C.I.M. ? Or would you rather be your own judges in this respect ?

Answer.—We are equally capable of judging our needs ; of course we will decide in consultation with the Chief Inspector of Mines.

Question.—At present he has got the full power in regard to the necessity of stowing for safety purposes.

Answer.—In certain circumstances stowing is essential.

Question.—In actual practice these powers are always exercised in consultation with the people who are concerned ?

Answer.—Yes.

Question.—On what basis do you recommend that stowing should be State-aided to the extent of 75% of the total cost ?

Answer.—The reason why we gave this figure is this : If it is 100 per cent State-aided, the colliery would lose all incentive to be economic and may even be extravagant.

Question.—Am I correct in saying that you favour no compulsory powers being vested with the Government in the matter of stowing, whether for safety or for conservation ?

Answer.—It goes back to what we gave as answer to Question 57, viz.,

“ No owner of grade I coal and above (Grading Board's specification) should be permitted to work their coal in such a manner that the seam has to be abandoned before maximum abstraction is accomplished ”.

In certain cases where stowing could be done by the owner, it should be left to him and may not be made compulsory. In principle our answer is that all collieries producing Grade I coal and above should be stowed.

Question.—Even there 25% of the cost should be borne by the company ?

Answer.—The reason being if Government pay the whole lot, there is no incentive for the colliery to go about their business in an economic manner.

Question.—Stowing also benefits the owner of the mineral. why should he not also share the cost ?

Answer.—We thought that by the time he pays his royalties and pays his taxes etc. he has not very much left.

Question.—You have suggested that the owners of the present ropeway installations should be reimbursed in some way or other in respect of capital expenditure incurred by them.

Answer.—Right.

Question.—Suppose Government do reimburse these ropeway owners in that respect. Would you then be agreeable to let these ropeways become the property of the Government ?

Answer.—We would prefer they should remain with the colliery owners, because they have been designed for them for the particular collieries, and we think quite frankly it would be more efficiently operated if the ropeway is permanently in the hands of the colliery owner.

Generally speaking, I think, we prefer to have no capital re-imbursement. But all we should be paid is what is being given to those who have not put their capital in sand-stowing.

If Government control is introduced, the pioneering firms should be compensated for their efforts.

Question.—Pioneering efforts never look for rewards. The point I had in mind was that if these pioneering firms, with all due credit for the work they have done, were reimbursed in a reasonable way for the capital expenditure incurred by them in setting up their installations, will the Government have the right to incorporate these ropeway installations in any larger scheme of sand-stowing which they may institute in certain particular areas.

Answer.—It is purely a technical matter. It is not possible for the ropeways as they are designed to carry one bucket more ; they are being utilised to the maximum capacity. I have discussed this question with others. The sand-getting equipment, pumps and ancillary equipment are designed to give the maximum efficiency in their existing places only. They cannot be made to give greater efficiency.

Question.—But the existing ropeway installations could be made a part of a larger scheme.

Answer.—Definitely.

Question.—You have no objection to such an incorporation ?

Answer.—Except that we still consider that for individual collieries, the installations will be more efficiently operated by the colliery. We have no objection, in principle.

Question.—If sand-stowing has to be supplemented in a very large way for the purpose of protection of certain of the coalfields areas, could you give us your idea of the sort of priority that should be granted to the various regions in the coalfields area for the purpose of sand-stowing ?

Answer.—That, I think, Sir, is a very large technical issue. It is peculiar to sand-stowing that if a man has not got sand, he seems to jog along, but the moment sand is available to him the more you give him, the more he requires.

Question.—You have made a reference to the sand rights which have been acquired by certain companies. We have received representations that these acquisitions have been rather disproportionate to their requirements and that they interfere in the supply of sand to other parties. If the State were to make large-scale arrangements

or sand-stowing all over the coalfields areas then would not it be a reasonable step to consider that Government should acquire all the sand rights ?

Answer.—We will have no objection to that, but there are certain technicalities. All the existing plants have been designed to take sand from certain parts of the river. If you take away sand from the area, say, belonging to Macneills, then their ropeway will just be left high and dry.

Question.—A rational scheme of provision of sand to the coalfields will mean the incorporation of the existing installations. Therefore, if Government incorporates these in their larger scheme of supply of sand, there should be no objection.

Answer.—None at all, on principle.

Question.—Even if it includes all the rights which individual companies have acquired ?

Answer.—None at all.

Question.—Have you given any consideration to the question of sand supplies in the Damodar river ?

Answer.—There has been no real concern hitherto about replacement other than replacement of banks which have been taken away. Thinking of such terrific figures, I think it is a matter of some concern. If we take small quantities, it may not be of much concern. But if we are to remove 30 million tons of sand per annum of river sand I think there must be very grave doubts about replacement.

Question.—You are aware of the Doamodar Valley Project and the decision to construct two dams one at Tilaiya and the other at Maithon, both on the Barakar river.

Answer.—We have a definite grouse on that. We were not aware of the project. We tried to extract technical details from the Damodar Valley people, and they have not even replied to our letter.

Question.—I am given to understand that your predecessor attended a certain meeting in December last year and agreed to the construction of these two dams.

Answer.—We want more detailed information. Mr. Voorduin told us that this was just a flea-bite. We told Mr. Voorduin that we have no objection to the constructions, provided sand is made available to us and at no higher cost than it is now. But we have not been furnished with any details of the scheme as a whole.

Question.—The information is that they are providing for low level valves, outlets from the reservoirs, to allow the sand at the bottom to flow out from time to time and their assertion is that the sand supplies in the river will not be substantially diminished.

Answer.—That may be, but I do suggest that it is a most important question and I think they should place their plans on the table. Without replacement of sand, the question of conservation of coal is just not even worth discussing.

Question.—Have you any special views on pneumatic stowing ?

Answer.—We have no experience.

Question.—In respect of new fields, newly discovered coal deposits, will it be your opinion that the Government itself should not initiate any development and leave it to private enterprise ?

Answer.—We think we are capable of dealing with it, but we must have facilities.

Question.—Do you think there is sufficient private enterprise in this country to deal with coal in the next 10 years ?

Answer.—Definitely.

Question.—In respect of cesses: if all the provincial cesses are levied on despatches and arrangements are made for the collection of these cesses by one agency and then distributed to the various recipients, would you agree to this.

Answer.—Yes. We would favour that.

Question.—The cesses that you are paying on profits just now, I suppose are borne by the coal owners.

Answer.—Yes.

Question.—In respect of utilisation of the funds by the various agencies who receive those cesses complaints have been received by us that the cesses have not been used. Have you any views ?

Answer.—Definitely. In the case of the Labour Welfare Fund, it is a case of maladministration. Then there are the Stowing Board and the Soft Coke Cess Committee. As administrative bodies they are quite satisfactory. The funds are collected regularly and the administrations are efficient.

Question.—You are quite satisfied with the administration of these cesses ?

Answer.—Yes and we feel that the Welfare Fund administration will be set right soon.

Question.—Does the Labour Welfare Administration which has been set up overlap any of the functions exercised by local bodies ?

Answer.—No. It does not touch the functions of others at all.

Question.—Will the Labour Welfare Advisory Body as indicated overlap the functions of the Jharia or Asansol Mines Board of Health in providing public health and medical facilities to provinces ?

Answer.—No.

Question.—In respect of various bodies like the Soft Coke Cess Committee, you expressed an opinion that their functions are so disparate that it is not practicable to amalgamate them in one body. Do you think how ever that there is a case for putting them under one central authority.

Answer.—Yes, say under one Central Department.

Question.—Question 14—page 15 dealing with mechanisation : I should like to have more information on the Training Schools.

Answer.—We have a scheme for training fitters and mechanics in our own workshops. This scheme of training is in its infancy, and our difficulty is to get suitable personnel to make the most of it.

Question.—Is this an individual scheme or a general scheme ?

Answer.—It is managed in the Raniganj coalfield by the Standing Coalfields' Committee. As a matter of fact we are all looking for suitable men to train men on coal-getting conditions.

44. WRITTEN EVIDENCE SENT IN BY THE INDIAN MINING FEDERATION AND THE INDIAN
COLLIERY OWNERS ASSOCIATION

I. CONSTITUTIONAL.

Question Nos. 1 & 2

The pre-war regime of divided control over the coal industry as between the Central and provincial governments only made for confusion and hindered the development of the industry on uniform lines. We therefore strongly recommend that legislation should be enacted at the earliest possible date making the Central Government solely responsible for all affairs relating to mines and mineral development.

We are further of the opinion that integrated control over all mining matters can best be achieved by placing such control in the hands of a single member of the Central Executive whose entire portfolio should be reserved for mining matters only.

We have no remarks to offer at this stage regarding the details of legislation that we envisage for the above purpose, as we feel sure that the coal trade will be duly consulted before they are formulated, beyond stating that we strongly advocate the creation of a body similar to the present Coal Control Board, composed of representatives of different interests including the coal trade, whose advice on all important questions the member in-charge of mining matters should seek and act upon.

We strongly feel that the Coal Trade should have at least two representatives in the Lower House of the Central Legislature.

II. ECONOMICS OF THE COAL INDUSTRY STRUCTURAL ORGANISATION OF THE INDUSTRY :

Question Nos. 3 to 6

The management and mining of coal by the various Managing Agents and other concerns are not objectionable as such and the system has not only not outlived its usefulness but is still necessary for the maintenance and further growth and development of the Coal Industry. The objection lies in the present mode of utilisation of the different types of coal mined by such concerns. The above also holds good in respect of mines owned and run by State Railways and by the Iron and Steel companies. Apart from such misuse of Coal, the policy hitherto pursued by the Railways in the matter of running their own mines, have had all along a very deterrent effect on the healthy growth of private enterprise.

It is always a wrong policy from the national point of view, for the State to compete with private enterprise. In this particular case, the Railways are placed at a most advantageous position in the matter of siding and yard facilities an adequate and regular supply of wagons. They also enjoy other special privileges which are denied to private enterprises by virtue of being the carriers of their own goods. Instances are also known where the

Railways have gone to the length of dumping the market with their slack coal with a view to bring down the price level of the market abnormally. Being themselves the biggest consumer of coal in this country, they have all along followed a purchase policy which has always been actuated by the object of creating an unhealthy competition in the market, resulting in the lowering of prices to uneconomic levels.

The Iron and Steel companies in their own interests have also helped the Railways in further bringing down the market prices by offering their own coal for sale at a very competitive price although their raisings have always been far below their own requirements forcing them to buy heavily from the market.

The lowering of market prices to an uneconomic level, as a result of the above, has inevitable repercussions on the wages of colliery labour and their standard of living.

OWNERSHIPS AND MANAGEMENT :

Question Nos. 7 to 10

We do not agree that merely private ownership of mineral rights has led to dissipation of coal resources. Up to the time when the Coalfields Committee of 1920 reported neither private owner of mineral rights nor Government were aware of the defects detected on enquiry. The Committees are not aware that terms of leases in the C. P. and other areas outside the permanently settled areas are substantially better than those in Bengal and Bihar. The fact is that all the best coal bearing lands in Bengal and Bihar were leased out by owners of mineral rights when the value of coal was hardly known to them and Government too very imperfectly realised the importance of coal to the industrial structure of the country. Even after the report of 1920 Coalfields Committee there was no move on the part of the Government to rectify matters. Under such circumstances the defects in terms of leases can only be put down to universal ignorance in the country and owners alone can hardly be made responsible for same. The Committees therefore believe that a drastic step such as acquirement by Government of mineral rights is hardly justified. Improvement can be brought about by suitable legislative measures amending the terms of the existing leases and enforcing them in the case of future ones.

The Committees do not believe that the administration by the State of coal-bearing properties will be any improvement on the above suggestion, viz. suitably amending and improving some of the terms of the leases by legislation. The Committees are not convinced that administration of mineral rights by the Courts of Wards in the different provinces has been any improvement over that of private owners.

As stated above the Committees agree that Government should enact legislation authorising State control over the power to lease coal-bearing lands including terms of leases.

Regarding State acquisition and working of concerns the Committees are strongly opposed to such proposal on the following grounds :-

- (1) Acquisition and operation of State collieries, even with huge outlays on development made possible by the unlimited resources of Government have not necessarily given a good return to the public money spent. Neither are the labour, wages and conditions any way better than those prevailing in privately owned collieries. Even if a National Government be established, such Government will hardly succeed in changing or improving conditions overnight. The huge cost of production in some of the State owned collieries does not point to better efficiency in the method of working.
- (2) The very heavy cost of acquisition and the costly method of working of State Collieries will obviously very much increase the cost of production and will result in making coal available to industries and other concerns at a prohibitive cost. The Committees apprehend this cannot fail without its repercussion on the entire economic structure of the country.
- (3) The process of acquisition will present enormous legal and other difficulties. During such process the existing owners will naturally lose interest in the maintenance of collieries, and developments are bound to suffer seriously. Serious decline in output for some years, will inevitably result. Such a prospect can hardly be contemplated with equanimity.

Regarding State control over production, distribution and marketing, these questions are dealt with subsequently.

FINANCE :

Question Nos. 11 & 12

So long as the Coal Industry was in a state of depression, banking concerns were reluctant to extend financial accommodation to small collieries. The money market is, however, comparatively easier now and with the improvement in the conditions of the trade, the financial position of the collieries is better than it used to be. With stabilisation of prices in the post-war period, we do not expect any colliery big or small to suffer for lack of finance.

So far as over-capitalisation is concerned, it is by no means a general problem in the Coal industry though isolated instances may perhaps be found now and then.

A peculiar form of over-capitalisation has, however, taken place during the War owing to the abnormal rise in the cost of plant, machinery,

buildings etc. and the consequent inflated values thereof. The special depreciation on machinery and plant allowed to the Industry by the Government on this score is really welcome, but if its full benefit is to be reaped, the period of availability of such depreciation should be extended beyond March 1950, as at present fixed by the Government. This point, however, arises more appropriately in connection with question 35 (Taxation).

PRODUCTION :

Question No. 13

The elements that make up the production cost in Coal are extremely variable owing to the varying conditions in the different mines. This is particularly so in the case of leadage cost which is the biggest item in the cost of production in many collieries. It is, therefore, difficult to give an idea of the proportion that the remuneration of labour bears to the cost of coal per ton at pithead. The figures of cost are being compiled and will be forwarded. The Committee are unable to furnish similar figures of pithead cost in foreign countries.

Question No. 14

There can be no denying that the *per capita* output of colliery labour in India is very low. In our opinion it is due to various inter-related factors, such as :—

- (a) Lack of education.
- (b) A low standard of living and consequent low vitality.
- (c) Unthrifty habits.
- (d) Excessive fondness for drink.

Removal of these factors should greatly improve the productive capacity of colliery labour.

Our concrete suggestions for promoting *per capita* output are as follows :—

- (i) A comprehensive system of education for the miner including primary school for boys and night school for adults.
- (ii) Improvement of their standard of living. Higher wages alone will not do this. It is our sad experience that increase in wages without a corresponding increase in the facilities to spend the additional income only puts a premium on drunkenness and absenteeism.
- (iii) We, therefore, strongly recommend that Consumer Goods in adequate quantities and varieties should be made available to the miners to absorb part of his income and create in him a taste for better living.
- (iv) Healthy recreation is another important factor in this connection. We recommend particularly sports and cinema shows for instruction as well as amusement.

- (v) Attention should also be paid to the miner's diet. The results of recent researches in diet should be used for the benefit of the miner whose taste should be educated in the matter. Unfortunately, instead of doing this the Government have recently seen fit to cut their rice ration which was a bare minimum. No step could be more calculated to further lower the already low productive capacity of the miner.
- (vi) We very strongly urge the introduction of prohibition in the mining areas. The Congress Government in Bihar had tried this for a few months with promising results but, unfortunately, the experiment was abandoned after the Congress resigned office.
- (vii) We consider it a mistake to grant any form of concession to the miner either in cash or in kind unless it is made conditional on output and not on mere attendance. Any additional payment to the miner to stimulate output should be paid as a direct reward for a stated quantity of coal raised.

Low output is sometimes caused by an entirely different reason, namely, short supply of wagons, at certain seasons, leading to accumulation of stocks at the depot or pithead and with a consequent reduction in the frequency with which tubs pass between the pit and the loading point. The obvious remedy of this is of course an improvement in the supply of wagons, a point which is developed in our reply to Question 16.

Question No. 15

The system of coal raising contractors has its own advantages. Unsystematic mining methods are not the result of the system itself but of lack of proper supervision and control.

Question No. 16

The output of coal in 1945 recorded a substantial increase over that of the preceding two years. In order to achieve this increase, the Industry had to grapple with many war time handicaps. There is, therefore, no reason why with the termination of the War the Industry will not be able to achieve a still further increase so as to meet the entire demand, provided the handicaps that still operate to hamper production are removed. These are, (a) lack of labour, (b) lack of machinery and (c) lack of transport.

(a) LABOUR.

We have dealt with the causes of the low output of colliery labour in this country and suggested remedies (in our reply to Question 14). We may make one further suggestion here. Colliery labour in India is recruited mostly from people whose habitual occupation is agriculture and whose way of living is, therefore, not quite suited to the mining or any other Industry. This fact has prevented the growth of a settled mining community in India. If the miner had the

opportunity, in addition to a remunerative wage for the cultivation of at least vegetables, if not food crops, in between the spells of cutting and lifting coal, he could perhaps be made to stay on the colliery all the year round.

Collieries should be empowered to acquire surface land for mines for the above purpose.

(b) PLANT & MACHINERY :

It is still difficult to obtain machinery at all and, even when available, collieries have to pay a prohibitive price for them. Renewals and repairs have become a pressing problem, the demand for War production having strained the machinery in the collieries almost to the breaking point.

New machinery will be required not only for repairs and replacements but also for the development to full capacity of many existing collieries and for the opening of hitherto unexploited coal seams in the Jharia and Raniganj Fields.

(c) TRANSPORT :

We are confident that given the men and the machinery, the Industry will be able to increase the production to the level of the heightened demand in the post-war period, provided the Railways supply the transport needed to carry all the coal that is raised. But our experience so far in this matter does not encourage optimism.

It is for the Railways to explain the reason for the chronic shortage of coal wagons, but, so far as we are able to pass an opinion in the matter, operational mishandling as well as lack of rolling stock are responsible for this, and a radical improvement in regard to both is essential not only for the increased output of coal but even for the maintenance of the output at the present level.

It should be borne in mind that the Railways will be called upon not only to provide an increased number of wagons for moving the coal raised in the existing collieries, the production in some of which will have to be considerably stepped up but also for new collieries to be opened in virgin areas in the existing fields. It goes without saying that siding facilities will also have to be provided for the latter.

All these will impose on the Railways a task which seems beyond its present capacity to accomplish. It is here that the limiting factor of coal production in India lies. The extent of the success not only of plans for an increased production of coal but of post-war industrial schemes in general, will be determined by the extent to which this factor can be removed.

DISTRIBUTION AND MARKETING :

Question No. 17

We are not in favour of a Marketing Agency on a voluntary basis, as we do not think that it will be a durable organisation.

The scheme which in our opinion is most likely to ensure stable and fair prices and equitable distribution, is more or less a system of sales quotas linked with fixed prices.

The ruling factor in the Coal Market has so far been the purchase prices paid by the Railways. We strongly recommend that there should be a permanent Committee comprising representatives of the Government, the Railways and the Coal Trade to fix these prices. Tenders should be invited by the Railways for specified quantities of coal at the prices thus fixed.

We consider that once the Loco prices are fixed, the prices paid by other purchasers will be automatically fixed on a level acceptable to both the public and the Trade by the action of demand and supply. But if it is considered desirable in the interest of consumers to fix all coal prices, we would gladly accept such a measure.

Very closely inter-related with the question of prices is that of equitable distribution of orders for coal among all producers. Our proposal is that the quota of wagons for every colliery should be fixed by statute and that every consumer, whether on the priority list or otherwise, should be required to limit his purchases from a particular colliery within its quota. The total number of wagons allotted to the Coal Industry should be adjusted to the existing demand for coal by a quarterly revision of the quotas ; this is essential in order to ensure equitable distribution.

In recommending the above scheme, we would point out that the conservation of metallurgical and high grade Steam Coals can be easily enforced through the quota system. It is thus designed to serve the two-fold purpose of stabilisation and conservation while at the same time it leaves a certain amount of freedom to the public in the matter of their coal purchases—a freedom which will be very much appreciated after experiencing the drastic control exercised by the Government under the present system. For our specific suggestions regarding metallurgical and steam-coal, please see our replies to Questions 45 and 51—53. The scheme outlined here should be considered along with and in the light of these suggestions.

It would be seen that the scheme we have in mind is more or less a scheme of sales quotas linked with fixed prices (wholly or partly). We are not asking for any large measure of State assistance towards stabilisation of the Industry except control over the distribution of wagons so as to ensure an equitable supply to every colliery, a responsibility which the State has in any case to accept by virtue of its ownership of the Railways.

We recommend that effective steps should be taken to promote the widest possible use of Soft Coke to prevent the destruction of the country's forest resources and waste of cowdung. Our concrete suggestions to this end are :—

- (i) a high priority in the matter of wagon supply for soft coke, and
- (ii) concessions in Railway freight for long distances.

Likewise, we also recommend a high priority in wagon supply for Slack Coal huge quantities of which will be required for the manufacture of

bricks to be used for building domestic houses as well as for other projects covered by the Post-War Reconstruction Scheme.

Question Nos. 18 & 19

We do not consider it necessary to regulate the use of different coals for different purposes except in the case of metallurgical and high-grade steam coals in regard to which please refer to our replies to questions 45 and 51—53. Whatever regulation is necessary may be achieved through the quota system outlined in our reply to Question 17.

Question No. 20

It should be the business of the colliery to ensure the despatch of the correct quality of coal and, in case consumers raise objections, to leave the matter to be settled directly by the parties concerned.

The use of Run-of-mine should be popularised, particularly by the Railways who are at present using such coal raised from their own collieries.

Question No. 21

We consider that the various sizes of coal should be as follows :—

(a) *Run-of-Mine* : Coal of all sizes mixed and unscreened as raised from the mine ; subject only to the elimination of shale, stone and other impurities.

(b) *Steam coal for shipment* : Coal of a size larger than will pass through a 2" diameter round hole.

(c) *Steam Coal* : Coal of a size larger than will pass through a 1" diameter round hole.

(d) *Rubble*

N.B. Rubble is double-screened and is mostly used for mechanically fixed boilers, gas producers etc. and the exact size required varies somewhat according to the specification of the plant, grates etc. sizes range between $\frac{1}{4}$ " to 2" and for smithy $\frac{3}{8}$ " to $\frac{1}{2}$ ".

(e) *Slack* : The undersized product produced by screening steam coal, i.e., coal 1" to 0" or 2" to 0". (Slack Coal is produced by screening either steam coal or shipment steam coal ; hence the two sizes).

(f) *Dust* : $\frac{1}{2}$ " to 0".

TRANSPORT :

Question No. 22

The despatch of coal from the different coal-fields is at present subject to a certain amount of regulation. We consider that a rigid system of zonal distribution is neither desirable nor practicable and we hope that the restrictions on despatch imposed as a measure of War emergency will be soon withdrawn.

Question No. 23

Except in the case of Soft Coke in regard to which please see our reply to question 17. We consider that the suggestion is neither sound in principle, nor feasible in practice.

Question No. 24

We strongly advocate the adoption of the principle of what is known as the Value of Traffic or Charging what the Traffic Can Bear in the case of railway freights for coal in this country, so as to encourage a wider use of lower grade coals and helping to conserve the higher grades. In our opinion the freight for the lowest grade of coal should be 33.1/3% less than that for the highest grade, the freights for intermediate grades being fixed *pro rata*.

Question No. 26

No.

Question No. 27

Restrictions on the movement of coal to many junction stations, such as, for instance, Mokamaghat, Agra East Bank, Ujjain, Waltair etc., seriously handicap the free distribution of coal affecting both consumers and producers. At times coal despatches are held up for an inordinately long time owing to such restrictions, the removal of which is urgently called for in the interest of everybody concerned.

Question No. 28

We wholeheartedly endorse the suggestions as we have already made clear in our memorandum and in our reply to the 1st Questionnaire.

PRICES & PROFITS :

Question Nos. 29 to 31

We do not consider that a separate reply to these questions is necessary, as we have already made our position in the matter clear in our reply to Question 17.

Question No. 32

As the cost of production is almost the same for every grade of coal, the difference in prices should be as little as possible and on this basis we have worked out the following schedule of prices f.o.r. colliery for different grades of coal classified under the present system. It will be seen that our prices closely approximate to the prices fixed under the Colliery Control Order.

Prices for Steam Coal.

- (1) Selected A—Rs. 13/5/-.
- (2) Selected B—Rs. 12/11/-.
- (3) Grade I—Rs. 12/1/-.
- (4) Grade II—Rs. 11/7/-.
- (5) Grade IIIA—Rs. 10/13/-.
- (6) Grade IIIB—Rs. 10/5/-.

Question No. 33

The element of profit is an extremely variable factor. So far as our collieries are concerned, few of them made any profit at all in 1936. It is true that most of them have been making some profit since 1939 but even in 1945 no collieries made anything like a very large profit.

Question No. 34

We consider that the middleman's commission should be fixed by Statute on the advice of the Advisory Board the creation of which is recommended in our replies to Questions 1 & 2.

TAXATION :

Question No. 35

We do consider that the Coal Industry in India is subjected to unduly heavy and multiple cesses and taxation and that a discrimination is made in this matter against the Coal Industry as compared with other industries. In support of the statement we would cite the Road Cess, the Public Works Cess and the Mines Board of Health Cess which are levied only on the Coal Industry to the exclusion of other industries in the coalfields which nevertheless enjoy the full benefit of the health and utilities services maintained in the coalfields out of the funds derived from these cesses. We are also giving below two tables showing how the discrimination against the Coal Industry worked out in terms of actual money payments during the time the E.P.T. was in force.

WHEN THE PROFIT IS RS. 36,000/-.				
	Income-tax	Road Cess	Mines Cess	Gr and Total etc
	Rs.	Rs.	Rs.	Rs.
Coal Industry	17,437/8/-.	2,250/-	562/8/-	20,250/-.
Other Industries	17,437/8/-.	..	..	17,437/8/-.

WHEN THE PROFIT IS RS. 4,36,000/-.				
	I.T. & E.P.T. Including compulsory deposit balance	Road Cess.	Mines Cess.	Grand Total
		Rs.	Rs.	Rs.
Coal Industry	17,437/8/- 4,00,000/-	27,250/-	6,812/8/-	4,51,500/-
Other Industries	(17,437/8/-) 4,00,000/-	..	..	4,17,437/8/-

The most glaring instance of discrimination against the Coal Industry mentioned above is furnished by the Road Cess. Coal by no means can be considered as a produce of the soil, however much we may stretch the meaning of the term, for coal, once mined, is lost for ever, there being no fresh growth to replace it. In any case, the imposition of this cess on the Coal Industry alone cannot be defended on any ground. A protest on this score was made by the Federation Committee about 25 years ago but their representation was turned down both by the Bengal & Bihar Governments which evaded the issue of principle by stating that the cess had been imposed by a decision of the then Secretary of State for India. The real fact is that the Provincial Governments consider this cess as a convenient source of revenue and have attempted from time to time to increase it. Further, Road Cess is treated as a tax on income and is not allowed as a Revenue Expenditure.

To give still another instance, the assets of other industries can always be replaced from the depreciation allowed, whereas Coal is a constantly wasting asset for the replacement of which the industry is allowed no depreciation.

Besides the direct impositions, the Coal Industry is subjected to diverse forms of indirect taxation, such as, the Stowing Excise Duty, the Labour Welfare Cess, the Coal Production Cess etc., collected with Railway freight. All these levies have their repercussion on coal prices and, though payable by consumers, they recoil on producers in normal times.

We are of the opinion that all these diverse taxes and cesses, with the exception of the income-tax, should be combined and consolidated into a single cess to be realised with the railway freight. A statutory body should be set up to administer the funds thus created and dole out assistance to various bodies like the Stowing Board, the Labour Welfare Fund Advisory Committee, the District Boards etc., according to their requirements. In any case, there should be one statutory body to look after the health and utility services in the Coalfields.

The Production Cess ought to be forthwith abolished in view of the fact that the necessity for it has ceased as from 31st March 1946.

The Mines Boards of Health and the Jharia Water Board, which obviously come under the purview of Labour Legislation, ought to be immediately abolished. It may be incidentally stated that the Central Government intended this at the time of the creation of the Labour Welfare Fund. But this intention was not carried out owing to the objections of the Provincial Governments, though no case could be made out for the retention of the above Boards whose functions overlap those of the Labour Welfare Fund Advisory Committee.

Recently some concessions in the matter of taxation have been allowed to the Coal Industry, such as, the special depreciation on machinery and plant (see our reply to Question 12), Production Bonus and Increased Standard Profit. Owing to various war time difficulties, such as lack of machinery and other facilities, only a handful colliery concerns have been able to qualify for the Production Bonus and in any case all these concessions are for a short period only.

The cumulative effect of the heavy burden of taxation that the Coal Industry has had to bear has severely affected its financial position. As a result, few colliery concerns have been able to set apart adequate reserves for the replacement of worn out machinery and for development.

To enable the Industry to play its due role in the programme of post-war industrial reconstruction, it is essential to remove the financial handicap and to put the Industry at least on a footing of equality with other industries in the matter of taxation, taking into particular consideration the fact that coal is a wasting asset.

QUESTION NO. 37 :

The implementing by India of International Convention in respect of Colliery Labour has certainly increased the cost of production. But the Committees are not opposed to the adoption of such conventions merely because of increasing production cost. They feel, however, that conditions in India differ so radically from

those in Western countries that implementing such conventions merely as a face-saving device is not justified. They consider that before adoption of any inter-national convention or obligation the Coal Industry in this country should be consulted and its opinion given due weight.

QUESTION NO. 38

Metallurgical coal may be defined as a coal which on distillation yields a hard coke of spongy and porous structure, silvery grey in colour and hard enough to resist crushing against fall of iron ores or lime stone, of low ash content, free from phosphorus and sulphur and capable of maintaining a high heat over a long period.

The known deposits of metallurgical coal are :-

- | | |
|-------------------------|---|
| (a) Jharia Coalfields | 9 seam and above ; |
| (b) Raniganj Coalfields | Laikdi, Ramnagar seams and to some extent Begunia, Dishergarh, Sanctoria and Salanpur B & D seams ; |
| (c) Mugma Coalfields | Sampur Seam ; |
| (d) Giridih Coalfields | Karharbari Seams, Upper & Lower ; |
| (e) Bokaro Coalfield | 10 to 13 seams (worked by Tatas); |
| (f) Jainty Coalfields | Jainty & Berengaria Seams. |

QUESTION NO. 43 :

(a) The life of the existing reserves of high grade metallurgical coal (which have already been depleted to a very great extent) can be considerably extended by proper blending with low grade coking coal found in 7, 8 and 9 seams of Jharia, Dishergarh, Begunia, Sanctoria and Salanpur, B & D Seams of Raniganj, Shampur Seam of Mugma, Kargali Seam and such other seams of coking quality.

(b) It is possible to eliminate a large percentage of the impurities of low grade coking coal by washing and thus produce a hard coke of much better quality.

Coal washing and blending in this country is still in the stage of research and experiment and it is therefore not possible to give any definite opinion as to concrete results.

QUESTION NO. 44 :

Iron & Steel Works should undertake experiments for using lower grade coals with a high ash percentage.

QUESTION NO. 45 :

It would appear from all available technical data that the known deposits of metallurgical coal in India are strictly limited while there are vast deposits of high grade iron ore. There is therefore a strong prima facie case for conservation of this type of coal by restricting its use to metallurgical

purpose only. But we suggest that the Indian Coalfields Committee should enquire and find out from acknowledged experts the actual position in the matter. If their enquiry reveals that the reserves of metallurgical coal are really limited, then the Committee should recommend measures for conservation by prohibiting the mining of metallurgical coal except for metallurgical use. We however feel that the full extent of such prohibition should not be made operative all at once but should be spread over a number of years, say, five.

QUESTION NO. 46—49 :

The present annual production of coking coal of good quality is in the region of thirteen million tons per year. Considering that the requirement of metallurgical coal in the next fifteen years is estimated to increase to fifteen million tons per annum (assuming the expected output of the Steel Industry to expand to ten million tons), it does not appear that the collieries raising this type of coal are likely to suffer at all by the contemplated restriction of the use of such coal to metallurgical purposes only. The loss, if any, suffered by colliery companies affected by such restriction can easily and should be compensated, as it is in the interest of the country that such restriction should be imposed, by a suitable adjustment of the price of high grade metallurgical coal.

There appears to be no immediate necessity for the State to acquire and operate metallurgical coal mines. On the contrary, we feel the imperative necessity of immediately closing down State collieries working metallurgical coal in the Giridih and Bokharo coalfields. If it be in the national interest to restrict or close down such collieries, it is only befitting that the lead should come from the Government.

IV. CONSERVATION OF HIGH GRADE STEAM COAL.

QUESTION NO. 50 :

Our definition of high grade steam coal (other than metallurgical coal) is Selected Grade Coal as per the Coal Grading Board's specifications and known deposits thereof are :—

- (a) Raniganj Coalfields Dishergarh, Poniat, Sanctoria, Begunia-Ghusick-Seams.
- (b) Jharia Coalfields Hantodi bottom, Pipratand, Bhurungia.
- (c) Assam Coalfields
- (d) Korea & Rewa State

QUESTION NO. 51—53

We do not advocate State ownership of high grade Steam Coal though we consider that as in the case of Metallurgical Coal it has been misused for purposes for which other coals are quite suitable. To prevent such misuse, we recommend high grade steam coal should not be allowed to be used except for the generation of steam and

its maintenance at a high pressure and also for the generation and maintenance of a high temperature. The restriction should be gradually enforced over a period of 5 years as recommended in the case of metallurgical coal. In the meantime rapid development of collieries producing comparatively low grade coal as well as untapped areas in the existing coalfields should be encouraged by all possible manner of means with a view to filling the gap in output created by the restriction. At the end of the period, the question should be re-examined and suitable measures adopted in the light of the experience gained.

V. CONSERVATION GENERALLY

QUESTION NO. 54 :

Formerly, the average percentage of extraction was around 50%, but it can be said to have increased to some extent at present. This increase is due to a more systematic method of depillaring a stricter enforcement of the provision of the Indian Mines Act, stowing in different forms in some cases, introduction of the panel system and other measures lately resorted to in the interests of safety.

QUESTION NO. 55 :

The existing mining regulations regarding first working & sectional working are, in our opinion, adequate, but in the case of depillaring in order that maximum extraction may be done with proper safety the one and only one thing we recommend is universal application of stowing in one form or another and we further recommend that for this, stowing material be made available at colliery site free of cost to all collieries undertaking depillaring. For new mines introduction of the short wall method of mining coupled with stowing may also be tried for maximum extraction of coal.

QUESTION NO. 56 :

This point has already been dealt with fully in replies to questions 1 & 31 of Questionnaire 1.

Such control should be exercised by the enactment of adequate Rules under the Indian Mines Act.

QUESTION NO. 57 :

Either assistance should be provided to all collieries raising coal liable to spontaneous combustion irrespective of grade or collieries raising coal other than selected grade coal should not be required to pay any cess at all, as there is no justification for imposition of the cess on collieries raising other than selected grade coal for the benefit of a few collieries raising selected grade coal.

QUESTION NO. 58 :

Yes, where sand would be necessary for the purpose of stowing the Government should acquire by lease or otherwise the sand rights from the present owners.

We have advocated free delivery of sand at colliery site. We think such acquisition of sand right by the Government would be necessary. We have given our reasons in our reply to Question No. 1 of Questionnaire 1.

QUESTION NO. 59 :

A reasonable levy should be imposed on the lessors on this a/c. by imposition of a cess on the royalty income.

QUESTION NO. 60 :

There is great difficulty and delay in obtaining permission and even when permission is obtained it is hedged round with numerous restrictions. The universal application of stowing will solve this problem.

QUESTION NO. 61 :

Yes, in many instances. There has been little development so far. This matter should be thoroughly investigated by the Fuel Research Institute.

QUESTION NO. 62 :

The Committees on further consideration since forwarding the replies, feel very doubtful as to the utility and success of any project of installing power houses in the coalfields for transmission of power to distant consuming centres. In this connection the Committees invite attention to a communication dated 9th December 1926 to the Government of India on the subject of Electrification of suburban Railways round Calcutta, (Copy enclosed). The Committees have reasons to believe that on the ground of high cost of production the above scheme of Electrification was abandoned by the Government. Although the cost of coal in the coalfields will be lower by the amount of Railway freight, the Committees believe, that the cost of transmission from the coalfields will outweigh the saving in Railway freight. Moreover, the Damodar Valley Multiproject Scheme, when brought into operation will be able to supply huge quantities of electrical power at a cheaper cost. The Committees therefore are of opinion that the economic of the question should be thoroughly considered before any such costly scheme be launched into.

QUESTION NO. 63 :

The Fuel Research Institute should undertake research with a view to the improvement of the quality of Soft Coke and the extraction of by-products at an economic cost.

QUESTION NO. 64 :

Yes, this will go a long way towards greater utilization of low grade high volatile coal in the Ranigunge series.

VI. MINING LEASES & FRAGMENTATIONS :

QUESTION NO. 65 :

It is not possible for us to give a detailed statement. The information can be obtained from the various registration offices.

QUESTION NO. 66 :

In the absence of any expressed stipulation, the right of instroke working is inherent in any lease document according to a consensus of the best legal opinion.

The position is different in regard to outstroke working, the right of which is not inherent in a lease. But permission can usually be obtained from the lessor for a consideration. But sometimes this is not so, particularly, when there are more than one intermediary lessors and sublessors. The law should be amended so that both instroke and outstroke rights are inherent in all mining leases.

QUESTION NO. 67 :

Prospecting licenses and leases are granted by Provincial Governments for short periods only with the effect that the lessees are reluctant to risk laying out sufficient capital for development or systematic working.

QUESTION NO. 68 :

The Statutory Board recommended by us for the settling of all disputes between lessors and lessees should be empowered to deal with all matters arising in this connection.

QUESTION NO. 69 and 70 :

It is very difficult to define an uneconomic colliery holding. Whether a colliery holding is economic or uneconomic depends on the depth and available thickness of the workable seams. A very thick seam lying at a shallow depth can be operated economically by a small holding. An area of 50 bighas of coal land with two thick seams outcropping thereon may be a better business proposition than a 500 bighas area with 1 or 2 thin seams disturbed and cut all over with dykes and faults, or with highly inclined coal seams. A number of small collieries working low grade coals have been assumed to be uneconomic for no other reason than the poor quality of the coal they produce, so that during periods of depression they have to close down, because they fail to find market for their coal. A big holding working the same quality of coal will therefore be equally uneconomic in times of depression.

In Bengal and Bihar all types of collieries working all grades of coal are held under leases, both direct from landlords as well as from intermediaries whose numbers often exceed one.

The Committees wish to make it clear that they do not advocate fragmentation of holding or small area workings, but we should like to point out that the loss in barriers in such cases is to a large extent compensated by the certainty of extraction of a very much larger percentage of coal in situ if the first workings are properly done in such areas. The risk of loss of coal from fires and collapses during extraction of pillars is much greater in large areas continually developed without barriers or panels. It will be evident from this that the mere fact that a colliery is small does not necessarily make it an uneconomic unit and undesirable in the national interest.

To sum up, no colliery large or small that is working at present can be described as an uneconomic holding.

Small collieries have contributed their due share to the output of coal during the critical period of the War and we consider that their continued existence is desirable in the national interest.

In view of the opinion expressed above this question does not arise. The Committee fail to see how national interest is adversely affected by the existence of small colliery holdings which are merely assumed to be uneconomic ones.

QUESTION NO. 71

This depends on the determination and clear definition of areas of proper economic size which the Committees fail to do.

The Committees do not think that fragmentation of colliery holdings is such a big problem as to justify acquisition by State of mineral rights on this ground. The only proposal commending itself to the Committees is the appointment of a Special Officer to negotiate with landlords and tenants, not only with a view to amalgamation of leases, but to square up differences and round up angularities in the terms of leases and to promote voluntary schemes of amalgamation.

VII. OPENING OF NEW COALFIELDS :

QUESTION NO. 72

Areas containing untapped or partially exploited deposits of coal in the country are :

(a) The eastern portion of the lower Raniganj Coalfield. This area, lying to the east of Ondal Sainthia, is only partially exploited because of lack of Railway facilities. The extent of the area is $12 \times 5 = 60$ sq. miles comprising the Kajora, Jambad, Bombahal Chora & Samla seams, all of selected 'B' & Grade I coal with a total thickness of 122 sq. ft. of coal. A new Railway line serving this region will give a great and immediate fillip to its rapid development.

(b) Kasta in Ramnagar Coalfield—north of the Adjai River in the district of Birbhum, is another partially developed area containing Selected and Grade I Coals. It covers about $24 \times 4 = 96$ sq. miles.

(c) South and North Karanpura containing No. I grade Coal.

(d) West Karanpura Coalfield containing Selected and Grade I Coal.

(e) The Coalfields in Central India.

VIII. ADMINISTRATIVE MEASURES

QUESTION NO. 73 & 75 :

We have already given our views in our reply to Question No. 35 (Taxation). We repeat that all the diverse cesses now payable by the Coal Industry should be consolidated into a single cess to be realized along with Railway freight. Further, a statutory body should be created to

take over the functions of the various bodies at present dealing with utility and health services in the coalfields with adequate representation of all interests represented on these bodies.

QUESTION NO. 74 :

It is desirable to have a single body under the Central Government under the direct control of the Member in-charge of Coal and Minerals whose appointment is recommended in our reply to Question 1 & 2. A Committee consisting of representatives of the Government, the Coal Trade, Royalty Receivers and Mining Engineers should be set up to assist the Member in his administration of this body.

ORAL EVIDENCE OF MESSRS. M. N. MOOKHERJEE, INDAR KUMAR KARNANI AND K. BASU REPRESENTING THE INDIAN MINING FEDERATION AND MESSRS. B. P. AGARWALA, P. DANDAKAR AND J. K. DHOLAKIA REPRESENTING THE INDIAN COLLIERY OWNERS' ASSOCIATION.

Question.—I take it that the Federation and the Association wish to give joint evidence before us.

Answer.—Yes.

Question.—Could you tell us about your constitution membership and representative character in the coal industry ?

Answer.—The Mining Federation is a registered body. It was registered in the year 1923. It started in 1913 and continually from 1913 it has been working. It received Government recognition, immediately after inception. The present position is that these are now two divided bodies. At the present moment the Federation's membership is about 350 and the Association's about 375 members. Of course there are a larger number of common members between both these bodies.

Question.—What percentage of the coal industry is controlled by the members of the two Associations ?

Answer.—We take it to be about 40% of the total output.

Question.—Are any of your members also members of the Indian Mining Association ?

Answer.—Quite a number of them are members of this association.

Question.—Question 1. The problems of the coal industry as discussed by the two Committees of 1925 and 1937 could be classified under three headings, safety, conservation and administration. From the replies which you have submitted to us is it correct to infer that as far as administration is concerned no action need have been taken?

Answer.—We consider that whatever action has been taken is adequate and we adhere to the opinion that even if there had been a wholesale acceptance and implementation of the recommendations of the two Committees, matters could not have been much better than what they are at present.

Question.—Are you opposed to the establishment of one authority dealing with all three aspects of coal industry.

Answer.—No, on the contrary we would rather that there should be one body presiding over all the aspects of the coal trade and dealing with all aspects.

Question.—Looking at these three aspects, in what respects do you consider that adequate progress has not been made ?

Answer.—About safety we have the establishment of the Coal Mines Stowing Board and Mining Regulations. They have gone as far as it was practicable to go but the Stowing Board cess is inadequate for the purposes for which it is required but it is necessarily so because the cess was imposed on the capacity of the trade and the consumers to bear. If it were levied at eight annas or a rupee per ton of coal and we think, this would be necessary to meet all the requirements of 100% stowing,—that could not have been a practical proposition. The trade would not have been able to bear it. It is admitted by the Coal Mining Committee of 1937 that when it is imposed and collected through Railway freight the impact of it is on the consumer. But it can be thrown back on our shoulders during depression when the consumers can and do dictate prices to us. So considering all sides the maximum cess of three annas was imposed and at the present moment it is collected to the extent of two annas per ton. But of course that is not sufficient for 100% stowing for conservation. The recommendations regarding the grant of leases, amalgamation of small properties and rotation working are perhaps the only recommendations that have not been accepted by Government so far. But I do not think that this has in any way very much interfered with the progress of our work.

Question.—Regarding exports, were any of your members largely interested in export before the war ?

Answer.—Before the war some of our members were exporting some coal, but now nobody is exporting any. Coal is being taken from our section of the trade for export, but we hand it over to certain shippers. Previously we were exporting ourselves, of course, very little.

Question.—What was the usual quality that used to be exported by your members ?

Answer.—Just before the war they were exporting mainly Selected grade coal. Some Grade I coal used to be exported also but that was very little ; probably 5 per cent of the total export.

Question.—Do you think the export trade should remain completely free of all restrictions ?

Answer.—We think the export trade should be kept alive.

Question.—There is a demand for banning the export of metallurgical coal. What are your views ?

Answer.—We agree with that demand.

Question.—Will it have an adverse effect on the demand for coal from overseas ?

Answer.—Whatever might happen, metallurgical coal should not be exported at all. When I said that we want the export trade should be kept alive, of course I failed to put in this clause.

Question.—You are aware of the acute shortage of transport prevailing in this country. There is the high priority given to shipment coal to export coal. Does that in any way interfere with the movement of coal for other purposes inside the country ?

Answer.—We are absolutely in the dark about movement of coal by the Railways. We do not know how far this export coal or coal for bunkers affects despatches to others. Just now you informed us that 2½ million tons of coal was exported from the port of Calcutta ; that was news to us. We had no idea that such a huge quantity of coal is exported and so we are not in a position to give any opinion.

Question.—In view of the high prices for coal prevailing to-day, is there any case for continuing the special concessions given to export coal in the past ?

Answer.—That was done to meet foreign competition. There is no chance of our knowing as to what is happening to the export trade, because a monopoly of export has been handed over to two or three firms only. Even the coal from our collieries is shipped by others, and we know nothing about it.

Question.—On question 8, you have stated that the grading of coal for the internal market is desirable but that it should not be made compulsory. Could you give your reasons for this view ?

Answer.—It is not very necessary always and it may give rise to various complications, especially in the case of collieries working more than one grade of coal. There are collieries which are working two or three different grades of coal. Unnecessary differences might arise between the consumer and the colliery about the quality of coal despatched from that colliery. If the consumer claims that grade I coal has been despatched in place of selected grade coal, it is difficult for the colliery to prove that he has given only selected grade coal. There may be frivolous complaints made.

Question.—You agree with the proposition that it is desirable to have all the coals which are produced in the country properly graded, properly analysed ; for what purpose then ? Should there not be some obligation on the colliery to supply the particular type of coal that the consumer wants ?

Answer.—He has the fullest obligation to supply—but there are chances of frivolous complaints being made.

Question.—If grading is made compulsory, surely one of the consequences will be the issue of grading certificates at the time of despatch ; those certificates will safeguard the supplying colliery.

Answer.—In the case of shipment, certificates are issued for 4 to 5 thousand tons of coal. But in respect of small orders of 100 or 200 tons, going in dribblets, there would be very serious difficulties. The obligation of the supplier is always fulfilled, that I can say from our side. And we adhere to the view that certificates should not be made compulsory at all.

Question.—You have suggested that the Railways should equip themselves to handle peak traffic. The implication is that some of the railways will want more rolling stock which will remain idle in certain months. There will possibly have to be an increase in the coal freight.

Answer.—But that has happened in the past.

Question.—Are you prepared to accept these increases in railway freight ?

Answer.—This is really a matter for the consumer. I would not object to that at all.

Question.—Question 15, is it the case to-day that short allotment of wagons on one day is not made up the next day ?

Answer.—It is not made up.

Question.—Do you consider it is feasible to do so under the present system of controlled distribution ?

Answer.—Well, I don't see why it cannot be done. All that will happen is that if it is made good the next day, other allocations will not be made. When the railways are not sure about their position, when they make allocations without knowing how many wagons they are getting such things must happen.

Question.—You remember that the 1937 Committee recommended that the priority supplies of coal should be abolished except for two or three principal consumers. Do you agree with that view ?

Answer.—Well, we have got to take it according to circumstances. The 1926 Committee recommended and they went so far as to say that this system should never be restored. They recommended this under different conditions and if the priority system had not been adopted in 1941-42 we don't know what would have happened to our collieries. In some cases collieries would have got as many wagons as they wished and others would have had to break their heads against a stone wall for one wagon in a week. That would have been the position. At the present moment we, to a certain extent, are sure of some supplies, but if there were free and unrestricted supply of wagons, we would not be sure about our survival at all.

Question.—Is it your view that in the event of the present coal control disappearing, we should still carry on with some sort of priority system of supply ?

Answer.—Yes, we have suggested a quota system, i.e., quotas based upon the output of collieries.

Question.—Does not the priority system give an unfair advantage to producers of high grade coal in the matter of wagons ?

Answer.—Unfair advantage to the extent that they supply to those consumers who enjoy high priorities like the railways, iron and steel industry and others. Of course they get an advantage but then that advantage really comes not to the suppliers of coal but to the consumers.

Question.—What are your views on the general complaint about an increased pilferage of coal ?

Answer.—It is naturally on the increase because coal, in sufficient quantities, is not available.

Question.—Question 18, what would you consider to be the minimum output of a colliery as a prerequisite for grant of a siding ?

Answer.—Six hundred tons a month. That is the minimum that a colliery can be run with.

Question.—Should an output demanding on wagon a day be considered sufficient by the Railways to go to the extent of spending a lot of money in the provision of a siding ?

Answer.—The Railways do not spend any money beyond the expenses on the permanent way. All the other cost is paid by the colliery. We think that six hundred tons a month should be sufficient to grant a siding and to earn a good return for the railways.

Question.—The Indian Mining Association considers that the minimum quantity to be guaranteed should be 5 to 6 thousand tons a month. In case a colliery is not in a position to guarantee such a quantity, they say that a siding should be granted only if a group of collieries agree to work together on a single siding and provide 5 or 6 thousand tons a month.

Answer.—They are owners of big collieries. They think in a big way. We cannot agree to that and we do not agree that the Railways in any way lose by granting sidings to a colliery raising only 600 tons.

Question.—Question No. 21. You have expressed the opinion that it is not possible to introduce group rates in Raniganj. Is it not desirable to have a group system ?

Answer.—It is not desirable.

Question.—Would you go as far as to say that the present group system in the Jharia field should be abolished ?

Answer.—We do not want any change.

Question.—What are your views in regard to the introduction of the group system in Bokaro ?

Answer.—We are not interested in the mines in Bokaro and we cannot give the views of owners there. We are interested in the Raniganj field and are giving the views of owners there in the Raniganj area.

Question.—Can you suggest any measures for reducing the level of the present high raising costs ?

Answer.—Not at the present moment. First and foremost we do not desire it and cannot reduce wage costs. The other costs are not in our hands.

Question.—Question 33. You have asked the Committee to consider certain modifications to the land acquisition procedure in order that colliery companies can be put into possession of land quickly. But section 17 of the Land (Mines) Acquisition Act does provide you the necessary facility for the purpose. Has that ever been made use of ?

Answer.—Even if the section be there, we have experienced enormous difficulties always, except during the war period when, of course, under the D.I. Rules we have had the surface lands made available to us at a short notice.

Question.—What are the remedies you would suggest for rectifying this state of affairs ?

Answer.—We would like some power in this direction vested in the hands of the C.I.M. Alternatively, on his recommendation, if he thinks it absolutely necessary that the colliery should be in possession of the land in a very short time, that request should be complied with.

Question.—To express an opinion on this subject is outside the sphere of activity of the C.I.M.

Answer.—In that case, we suggest the appointment of a special officer for that purpose.

Question.—A suggestion has been made that efforts should be made to try to reduce the ash content of several types of Indian coal by washing. Whose should be the responsibility for washing, the collieries' or the consumers' ?

Answer.—Consumers' of course.

Question.—You are suggesting that consumers should get their coal from you and try to experiment whether, by washing, that coal may be made suitable for their purpose ?

Answer.—Their suitability is known. Unless it be a commercial proposition and a paying proposition it is difficult for us to do washing. Uptill now washing has been attempted but has not paid. Attempts, we understand, are being made to make washing a paying thing. Only those who have the resources can go in for that.

Question.—But surely, as a commercial concern you should see that your output finds a suitable market at a suitable price and if necessity compels to treat that coal in some respects.

Answer.—The difficulty is that processing is very costly and if this cost is added to the coal-raising cost, it won't find a market.

Question.—What interest have you displayed so far in the question of fuel research ?

Answer.—None.

Question.—Is it not desirable that your Association should exhibit some interest in it ?

Answer.—We have to, but then our first and foremost consideration has been to keep body and soul together.

Question.—Do you think there is any justification for asking the industry to bear a proportion of the cost of such research ?

Answer.—It is a very costly business. In England, vast sums are allotted for new research stations. Here, Rs. 15 lakhs are allotted for five years. If the Government is running the research, they can impose a cess on the coal industry.

Question.—You are aware of the proposed establishment of the Fuel Research Institute. Would you care to express an opinion on the scope and extent of the institute ?

Answer.—Having no detailed information, I cannot say much. But what appears to me is that the expenditure sanctioned is quite inadequate. It would be only sufficient for building and paying the salary of the staff for five years. Such a move would not be of any real benefit to the industry.

Question.—What would you consider to be the scope of a properly constituted research station in India ?

Answer.—They can find out the extent of metallurgical coal available in the country; they can find out whether other coals can be made use of for metallurgical purposes by washing processes; and they can also find out what type of fuel is needed for a particular purpose. A complete analysis of the coals in India should also be one of its functions.

Question.—In respect of education in the coal-fields, do you consider it practicable and desirable that compulsory primary education should be enforced ?

Answer.—Yes.

Question.—Would the industry be prepared to contribute financially towards the provision of additional educational facilities ?

Answer.—We are doing that already. There is the Labour Welfare Fund. It raises a cess of four annas per ton of coal despatched. Certainly if we are assisted and guided by Government along right lines, we are prepared to do our bit.

Question.—You have expressed your views regarding the institution of a central department. Do you think, that the various responsibilities regarding coal can be distributed suitably between the Provinces and the Centre ?

Answer.—No. That should not be done. wherever powers have been devolved, there has been duplication. The mining lease question is under the Provincial Government, and it has remained a vexed question all along, ever since the 1920 Committee Report.

Question.—In your opinion, centralisation of every aspect of the coal industry is necessary.

Answer.—Yes.

Question.—Do you consider that a compulsory regulation of the use of coal is necessary?

Answer.—Yes, but of metallurgical coal only.

Question.—You suggest that because of the low reserves of metallurgical coal in this country?

Answer.—Yes.

Question.—If then there is plentiful of other types of coal in the country you will let people misuse as they like?

Answer.—There is no question of misuse. How can there be misuse, I don't understand?

Question.—I will put you a specific question. If brick kilns tomorrow start using Dishergarh coal for burning bricks, would you call it misuse, even though reserves of first class steam coal may be large?

Answer.—It is misuse.

Question.—In your opinion should that be regulated in any way?

Answer.—Yes, of course.

Question.—You have not pointed out any special deficiencies in the present structure of the coal industry. I assume that you have no objection to consumer interests like the railways, steamer companies, cement companies, having their own collieries and operating them for their own purposes?

Answer.—Of course it is objectionable from our point of view, but we cannot help that, because there is no law to prevent them doing that, but we feel that it is not.

Question.—Surely it is open to this Committee to recommend to Government to put a stop to this sort of thing happening if we are satisfied by any arguments or reasoning you put before us that it is inherently not beneficial?

Answer.—Those companies should produce just what they want. Steel works—they should not sell the coal in the market at competitive price. They may own collieries for their own purposes excepting of course the State Railways. Our objections stand in the case of State Railways.

Question.—Tomorrow if the steel works are nationalised would you object to the steel works owning their own collieries?

Answer.—Yes, our difficulty is to compete with them. They have so many advantages, the State provides so many advantages to the State Railway collieries that it is difficult for us to produce coal at that cost sometimes.

Question.—Could you elaborate your objection to the Railways taking measures of precaution by having their own collieries?

Answer.—If they were held only as an insurance against the market going against them, we won't object. It is just possible that during the war emergency the market may not have been able to provide all the coal required by the railways; in such an emergency, railway collieries may have been allowed to function, but, in normal times, they ought not to come in at all.

Question.—Your suggestion is that, in normal times, the railway collieries should close down or would you keep them.....

Answer.—Keep them on maintenance basis.

Question.—Regarding the Managing Agency system, is it your considered view that the future development of the coal industry should adopt this device?

Answer.—We have no objection to that. We have nothing against Managing Agents.

Question.—Is there any substance in the allegation that the Managing Agents are likely to overlook the interests of their coal companies if their other interests are larger and more substantial?

Answer.—In such circumstances, of course, it is just possible, but then we don't know how to avoid that.

Question.—You have stated that the Railway administration's purchase policy has been largely responsible for the depressed state of affairs in the coal industry during the years 1930—1937. That period was a period of depression practically all over the world. Would it be correct to say that if this Railway purchasing policy was not present in the Indian coal trade, you would not have suffered from the depression?

Answer.—I would not say that we would not have suffered but we would have suffered less.

Question.—If the administration of Railway collieries is completely divorced from the administration of Railways would your objections continue?

Answer.—But how that will be possible, we cannot understand. We think that the administration of Railway collieries will be influenced by the Railways, in the sense that whatever the demands of the Railways are for their coal the Railway collieries would be in the same status and position as an ordinary commercial organisation. If it be Government-owned the same objections that we have already stand.

Question.—I assume that you gentlemen, have studied the Report of the Land Revenue Commission, Bengal, 1940—the Floud Commission.

Answer.—Yes.

Question.—The Land Revenue Commission, Bengal, has recommended the acquisition of mineral rights. I assume that you are aware of the reasons for which the Commission recommended this. Under the present system wastage is prevalent. Conservation from a national point of view is often neglected. Do you disagree with that?

Answer.—We have stated already that some wastage is inevitable, because of ignorance on the part of everybody concerned about the right method of working of coal. Really speaking, the coal industry in this country is not more than 50 years old and during the first 25 years neither the Government nor experts, nor of course the colliery owners, or the royalty owners, knew anything about the conservation of coal, quantity of coal available or the real use of coal.

Question.—I will come to that afterwards. You have suggested that improvements can be brought about by suitable legislative measures, amending the terms of existing leases and enforcing them in the case of future ones. Will you agree with me that the terms of the various leases applicable in Bengal and Bihar vary considerably from each other? Is it your suggestion that each and every lease should be examined and then made the subject of legislation?

Answer.—Before that, I think, legislation may be undertaken in a general way in national interest. In a way, the owners should be allowed or the colliery should be allowed to work, or the owner should be allowed to lease that property. A general proposition and a general scheme ought to be adopted and an outline of legislation made.

Question.—Do you think the owners of mineral rights have exercised their privileges in a proper and efficient manner as far as national interests are concerned?

Answer.—No.

Question.—Do you think that the State has any right to interfere if the owner either wilfully or unwittingly becomes responsible for the waste of national assets?

Answer.—The State should point out where the defect lies and ask that it be removed. The State itself has not done anything upto now. The Court of Wards under whom there are many estates did not think it at all proper to take any steps in that direction.

Question.—In the matter of State action to improve the present position, do you suggest that Government should regulate the rates of royalty, of the salami?

Answer.—Well, the view of the two previous Committees was that Government should step in and equalise the royalties; I mean the linking up of royalties with the qualities of coal which is not at present the case. At the present moment the position is that the best quality coals that are worked in the Raniganj and Jharia coalfields pay much less royalty. Almost everywhere that is the case. But if the Government gives an assurance that according to the quality of coal royalty will be decided, we might agree to the Government acquiring all coal royalties.

Question.—Let me get on to the point. You are opposed to State acquiring the mineral rights but you are for the State stepping in to regulate the power to grant leases, to regulate the terms of leases and to regulate salami. Isn't that very drastic curtailment of individual liberty?

Answer.—They should control, not possess, the power. They should control and regulate.

Question.—Control the power to grant leases?

Answer.—Yes. Control the power and regulate.

Question.—That means in principle you are not opposed to it provided it brings some benefit to you.

Answer.—Not benefit, but justice.

Question.—You know all is not well with the coal industry. Do you think every thing is all right?

Answer.—The coal industry is well as it can be under the present circumstances.

Question.—But there are certain black spots here and there. Do you think private enterprise can rectify them?

Answer.—Yes, under Government direction.

Question.—You have suggested in your memorandum remedies for shortages, defective working, misuse of coal and in some respects you have even suggested curtailment of production; if those measures are adopted they will undoubtedly restrict the scope of operations of particular mines.

Answer.—Yes.

Question.—Those mines may or may not be entitled to compensation. Won't the balance of advantage lie in the State acquiring those mines instead of paying compensation for that particular mine?

Answer.—I cannot appreciate that. We have been accustomed to working under restrictions—various regulations have been adopted and we have to work under them. Unless we find the nature of the restrictions that are contemplated it is difficult to pass an opinion.

Question.—You have suggested that under State operations neither will labour benefit nor will efficiency improve.

Answer.—Yes, past experience is to that effect.

Question.—Is it your opinion that under the present structure of the coal industry labour is in a beneficent position?

Answer.—It is not.

Question.—In your recent memorandum embodying certain modifications of your previous replies I find that you make a definite suggestion that a Special Officer should be appointed by Government to negotiate with landlords and tenants. Do I take it that your position is that before Government thinks of undertaking legislation for the purpose of acquiring mineral rights they should at least give a chance to the trade by the appointment of an officer of this type just to see whether in, say a specific period of time, things improve materially or not?

Answer.—Yes.

Question.—And if the experiment proves a disappointment or a failure you wouldn't oppose any drastic scheme for acquisition of mineral rights.

Answer.—No.

Question.—If the State takes control you would like the lease agreements to be in a more detailed form. You agree with that?

Answer.—Yes.

Question.—It will be very difficult to cover all details, thickness of seam, depth and so on. Has the Government or trade considered drafting a form to cover these matters in detail ?

Answer.—Well, there may be a general form and if there be any peculiarities anywhere, the Government experts ought to be able to point them out. There is generally no such difference in the method of working or in the structure of coal that a general rule may not apply. If in particular cases they have to be applied Government experts should be in a position to put the leases in the right form. Even if the Government control the terms of leases at a later stage it will still be necessary to have some human authority to whom references can be made for exception in the matter of detail.

Question.—You have said that you are in favour of amending legislation in respect of removing the defects in the leases and that you would recommend that the State should appoint an officer who will go into the terms and conditions of each lease and make recommendations accordingly. From your wide experience of the coal industry how long do you think it will take this officer to correct all the defects in all the leases which may be present to day?

Answer.—Well, I meant one top officer. He should also have his Department and his assistants in the Department will bring about those things. I intend him to be a Liaison Officer in charge of that Department. Then it may take two to three years.

Question.—Question 13. You have made a reference to leadage cost being the biggest item in the cost of production. Will you please throw some light on that expression ?

Answer.—Members are suffering from this difficulty owing to transport facilities not being granted by Railways ; so, they have to carry coal in tubs over long distances sometimes 2 to 3 miles—and that is why in many cases the leadage cost is the highest.

Question.—Surely it is the responsibility of the operator to reduce those costs. Have not such members who complain of heavy cost in leadage, enough funds reserved to improve on the leadage system they possess ?

Answer.—But the improvement cannot be brought about by mine owners' individual operations. The Railways must co-operate to a larger extent.

Question.—It is the absence of a siding ?

Answer.—Yes. There is absolutely no reason why there should be any long leadage if the sidings are on the properties or near the properties.

Question.—Are you quite sure that in the innumerable small mines which are operating in Bengal and Bihar fields, it is practicable to put a siding in each mine ?

Answer.—Quite a large number of mines are working side by side and one railway siding along these mines will serve the purpose.

Question.—You are aware that output per man shift has dropped considerably in 1945 as compared with 1936-37 ? Could you give us the reasons for that drop ?

Answer.—Increase of wages. Wages have been increased and other necessities of life especially foodstuffs ; the labour are getting free or at nominal cost foodstuffs and consumer goods at concessional price. All these things combined have brought about laziness and drunkenness. These two things keep away labour from their work.

Question.—You are definitely of opinion that the more you pay, the less is the output ?

Answer.—Uptill now that is our unfortunate experience.

Question.—Do you belong to the school which believes that good food, good housing, good education and other amenities will not improve the output ?

Answer.—Not at all. On the contrary we have suggested all that. But from our experience in the last 10 years, there does not appear to be any improvement as a result of increased wages etc.

Question.—Would you agree to some sort of minimum wage for the miner ?

Answer.—We have absolutely no objection to the fixation of a minimum wage, but in order that we may be in a position to go on paying the minimum wage, minimum prices for coal should also be fixed.

Question.—Would you also be agreeable to a limitation of rate of profits you should make ?

Answer.—If it be reasonable, yes.

Question.—In question 15, you are referring to the raising contractors and you see no objection to the system. When a mine does employ contractors for the purpose of raising, what sort of guarantee is there that labour will get its proper wages ?

Answer.—Well, the labour themselves will complain immediately if they are given short wages or deprived of their amenities.

Question.—Is it within your experience that because of the introduction of contractors, there is more trouble between the labour and the mine-owners ?

Answer.—We have had less trouble.

Question.—You have suggested various methods for the purpose of promoting the *per capita* output of labour and they are very comprehensive. You seem to lay great stress upon prohibition. Can you definitely state that you have watched the increase in the consumption of liquor or other intoxicants in the mining areas in the last few years ?

Answer.—Drunkenness increased very much in the Jharia coalfields in Bihar after the re-introduction of the out-still system in 1935-36. In 1937, when the Congress Ministry came into power, they immediately adopted prohibition as

one of their policies and this was, in fact, enforced in the Jharia coalfields. There was a very appreciable improvement in drunkenness and also in the work they were putting, in general health, in a very short time. This lasted for nearly a year and a half. But immediately the Congress Government resigned, the old system was re-introduced on the plea that there was distillation of illicit liquor.

Question.—When their wages and other benefits have increased, do you notice any further deterioration?

Answer.—Yes.

Question.—Do you have any voice in the location of grog shops in the mining areas?

Answer.—Only nominal. On the Excise Advisory Committee, there is a representative of the mine owners, but the advice given is more often ignored than accepted.

Question.—In regard to question 17, you have expressed yourself in favour of a system of sales quotas with fixed prices. You have also asked us to ensure that such a system is closely interlinked with equitable distribution of orders for coal among all producers. A system of sales quotas means regulation of production.

Answer.—Yes, regulation of production according to the availability of transport.

Question.—A system of equitable distribution of orders among all the producers may involve control over distribution?

Answer.—But if the quota is fixed there need be no control over distribution. The collieries will have the liberty to accept orders only up to the quotas provided.

Question.—Suppose a colliery is unable to use its quotas of wagons?

Answer.—That will not arise because the production quota is correlated to the demand. Therefore, whenever a quota is fixed for a colliery the consumer will have to contact that colliery and that colliery will be free to sell coal only on the strength of its quota.

Question.—You have suggested that you are in favour of a marketing agency on a voluntary basis. Are you in favour of that marketing agency under State auspices?

Answer.—No. We are not. We do not want any Government agency in the market.

Question.—I should have thought that it is possible that certain collieries may not be able to sell their output and a Central marketing agency should come to the help of such collieries?

Answer.—A Central Marketing Agency cannot help such collieries, if there is no demand. In the past there has been less demand and there has been overproduction and therefore collieries have been unable to secure orders. If that contingency rises once again, a State marketing agency will ever be able to do anything.

Question.—If there is a Central Marketing Agency taking into account the total output of a colliery, that marketing agency will ease the burden of a single colliery and supply will be regulated equitably and so the small collieries will not suffer. You have agreed to control over production. This is only the next step. There should be gaps in your scheme and they may be filled up by the institution of a Central Marketing Agency. One of the functions of that marketing agency is that if a particular colliery is unable to sell its coal, the onus will fall on that agency to dispose of that coal of the particular colliery.

Answer.—What we are really afraid of is that when a Central Marketing Agency like that is formed, and when it finds that the output of a colliery is increasing while it cannot find a market for that coal, it will favour the collieries producing better quality coal rather than the collieries producing lower grade coal.

Question.—After all it is a machinery, but what about the principle?

Answer.—No machinery, no human machinery can be devised like that. It will depend on the likes and dislikes of the members administering the marketing agency, and as human machinery is what it is, we cannot expect that it will for all times do only the right thing. From our present experience we stated that in spite of the existence of the Coal Control Board, of the Controller of Coal Distribution, the collieries working lower grade coal are as much neglected as they can be according to the will of those who are in power.

Question.—You have suggested in your reply that once the price for coal required by the railways is fixed the prices paid by other purchasers will be automatically fixed on a level acceptable to both the public and the trade. Could you say whether that price will tend to become the minimum or the maximum for the various classes of coal?

Answer.—That is according to the strength of the market. If the tendency be towards overproduction, the downward tendency will not be arrested even if you fix prices.

Question.—Although you have no very definite opinions about the fixation of prices for other coals, do you think that this step will be sufficient?

Answer.—This will be sufficient, not of course for the class of coal which is not acceptable to the railways. The railways don't purchase all classes and grades of coal.

Question.—And for these other grades you recommend should be fixed?

Answer.—Yes.

Question.—Questions 18-19, you agree that in respect of metallurgical coal and in respect of high grade steam coal, steps should be taken to restrict the use of these coals for specific purposes?

Answer.—Yes.

Question.—These two classes of coal today cover approximately 50 % of the output ?

Answer.—More than that. We have not got the figures.

Question.—What objection have you to similar regulations in respect of lower grade coals ?

Answer.—Well, the difficulty will be that there are so many units producing lower grades of coal. To restrict each and every one of them to particular purposes or a group of them to a group of purposes will be very complicated.

Question.—The idea behind this proposal is to prescribe by scientific research that such and such coal should be used for such and such purpose. For instance you should not burn coking coals in brick kilns ?

Answer.—Yes, there should be proper utilisation. Particular coal should be used for a particular purpose only.

Question.—You will have no objection to extending the regulation of use of coal for all coals.

Answer.—We have no objection.

Question.—You have suggested in Question 22 that you are not in favour of zoning. After all zoning simply means an attempt to provide coal to the consumer from the nearest source of supply. Surely it is a practicable suggestion.

Answer.—You cannot that way always supply the consumer the quality of coal that he needs or likes.

Question.—Except to the extent of regulation of the use of coal. We know the needs of the consumer ; and, if the consumer wants Dishergarh coal for burning in his kilns, he should be told that he can use grade II or Grade III coal only and grade II or III may be available in the zone which he is situated ?

Answer.—Well, in that case, we agree ; so long as the coal that he requires is in the zone in which he is situated.

Question.—Question 32, you have suggested that the difference in prices between the various types of coal should be as little as possible. Are you not encouraging the greater use of high grade coal by that method ? If the price differential between the various grades is very small, naturally the consumers will prefer to use better class coal.

Answer.—Not if the consumers are restricted to the use of coal suitable for them, as is contemplated.

Question.—Your suggestion is that for every type of consumer in this country we should prescribe the particular kind of coal ?

Answer.—That has been suggested in our replies.

Question.—Would not that be a rather impossible task to examine every unit of industrial production ?

Answer.—But otherwise how will you nation alise the supply ?

Question.—For particular types of industry we propose to recommend particular types of coal. Unless you go further and agree to some sort of a distribution which you can put into effect it will

mean you are encouraging the use of better grade coals and not lower grade coal.

Answer.—It is proposed that the metallurgical and high grade steam coals should be restricted to the purpose for which they ought to be used in view of the small resources of those kinds of coal.

Question.—Question 35, you have suggested that there is a discrimination against the coal industry as far as taxation and cesses are concerned. I should like to know in what way you consider that the coal industry is being discriminated.

Answer.—Because no other industry is called upon to pay such taxes at all.

Question.—Therefore there must be something peculiar in the coal industry.

Answer.—The only peculiarity is that some time before 1880 the Secretary of State suggested that these cesses should be imposed on the mineral industry. That is the only peculiarity.

Question.—In reply to Question 45 you have suggested that a prohibition be placed on the mining of metallurgical coal except for metallurgical purposes. Do you consider that units of production which must be subjected to consequential curtailment of output or closing down deserve to be compensated in any way ?

Answer.—Yes, they must be compensated.

Question.—What would you consider to be the proper basis of compensation ?

Answer.—That has to be found out. We did not go into the details as to how they should be compensated but we on principle are of the opinion that they ought to be compensated.

Question.—Is there any real reason for awarding compensation ? If it is in the national interest to restrict the production in respect of a certain commodity whether for stabilising prices or for conservation in resources why should there be any complaint ?

Answer.—When the collieries started and financed the undertaking that they were going to work, they had absolutely no idea that they would come under any restriction or ban in the future. If you impose the ban you ought to suitably compensate them in respect of the profits that they have been making in the last so many years, say an average of three or four years' profit. On that basis they should be compensated.

Question.—I would like to draw your attention to your revised opinion on Question 62. Is it the case that in the last 11 years you have not been impressed with this need for electrification and hold to your views expressed ten years ago ?

Answer.—Yes, we do hold them because we consider that places at a short distance from the collieries need not go to the expense of electrification.

Question.—Because there is a shortage of coal in this country, one of the measures of economy which can be adopted is to electrify the track and save coal for other industrial purposes.

Answer.—On the same ground other industries and other consumers of coal might be given electricity, so that the demand for coal will be almost absolutely extinguished.

Question.—So your view is that the State should not take steps to fall in line with modern methods of improvements to traffic ?

Answer.—If it be less costly ; the State is entitled to go ahead.

Question.—You have said that small collieries working at present cannot be described as 'uneconomic holdings'. Will it surprise you to know that the consensus of opinion, practically all round amongst individual mining engineers, operators, consumers and Government controllers is that there is a very large number of mines which are working uneconomically today ?

Answer.—Well, all these people you have mentioned who have dubbed these collieries as uneconomic have no inside knowledge of them. I am not prepared to accept this view of mining engineers, or anybody, however eminent they may be of things, outside their knowledge.

Question.—You do not agree that fragmentation has led to uneconomic operations ?

Answer.—Not by itself.

Question.—You also do not agree that small size, irregular boundaries do not tend to make a mine uneconomic ?

Answer.—We have not stated that. If we held that view we would not have recommended the appointment of a Special Officer.

Question.—Are you aware that in certain parts of Jharia, there are mines operating 50 bighas. Are you also aware that in such mines the top seam is worked by somebody and lower seam worked by another party ?

Answer.—I am not aware. There may be a few cases.

Question.—Would you call them economic holdings ?

Answer.—Economic working or holding, I do not think has any connection with the ownership of the top or bottom seam. If there is an arrangement between them not to waste coal, it is all right.

Question.—Would you call it a proper method of awarding leases for operation ?

Answer.—I don't think so. Those cases are few and far between.

Question.—In the cases mentioned in 1937 Report about Tisra and others, has any improvement taken place ?

Answer.—About Tisra and others they have functioned successfully during the worst depression periods and they are paying income-tax, too.

Question.—What I would like to know is whether there has been any waste of the national resources in respect of coal, by the operation of mines of this nature ?

Answer.—There has been less waste, in many cases, than in larger collieries. Surely, a considerable amount of coal is lost in barriers, panels, etc., in a holding working 500 bighas than in a holding of 50 bighas. The loss in a larger colliery is many times than in small ones.

Question.—Do you mean to suggest that in a fair-sized large holding, as you call it, there is more loss in working than in a small mine ?

Answer.—What I mean to say is that there is not less loss in a bigger one than in a smaller one. If you kindly examine the number of accidents you will find that they are many times more in the bigger mines than in the smaller mines.

Question.—Would you care to make any general statement ?

Answer.—Apart from what has been stated in our replies, generally we should state that we are not against any improvement that can be brought about in the condition of the trade, any scientific improvement or any other sort of improvement, by legislation. If we can be assured that the conditions will radically improve in a short time immediately after acquisition by Government of mineral rights as well as mines, we would not at all demur to that. We have no doubt made mistakes in the past, but we are not entirely responsible for them ; everybody concerned from Government downwards, has some responsibility there. If there have been mistakes, they have been committed unwittingly, not knowing the real consequences thereof.

Question.—I should like to give you the assurance that it is not our object or our duty to sit in judgment over what has happened in the past. We want guidance from you gentlemen, who have a lot of experience, regarding the regulation of the industry in future.

Answer.—We are accustomed to work under control, and the type of control that we have been working under during the last few years, control over production, distribution and everything has made us impervious to all suffering. Well I may say that sufferance is our badge ; we have suffered, we are suffering, and we are prepared to suffer more ; but we hope that if legislation is adopted, it will be sympathetic legislation not placing all the blame on us and therefore not penalising us for past mistakes.

Question.—I am quite sure that if national interests demand any kind of restriction, regulation, controls, you will be quite willing and ready to co-operate in putting them through.

Answer.—Our past records will show that we have been cooperating with Government agencies always.

We have objected to many kinds of Government interference, Government regulation. They should not be taken in any spirit other than that we are always prepared to do anything which will be helpful to the growth of the industry for the benefit of the country.

Lastly our request is that you should make such a recommendation in your Report as will enable the lower grades of coal and collieries working lower grades of coal to live and function. In the past, their position has been that whenever the market conditions became depressed the first blow fell on them and they had to take it ; that is perhaps natural. But if it be possible for you to make any recommendations so that these collieries may live and function, it would be very helpful. After all, these collieries have given their full mite during the war years and have helped Government to meet the coal situation to a very great extent. Without their help, Government could not have faced the situation so well as they have done. We hope something will be done in their case,

45. WRITTEN EVIDENCE SENT IN BY THE INDIAN
COLLIERIES UNION, KATRASGARH

Questionnaire I

Question 1. The Committee of the Union is of the opinion that the action taken by the Government of India on the recommendation of the two previous Committees on coal industry, has been of a partial character and has not proved entirely satisfactory. It is necessary that further steps should be taken to solve the different problems of the coal industry.

The Committee of the Union is, however, of the opinion that the same media for improving the conditions of the coal trade would not succeed and it is necessary that a Statutory Board should be constituted for the purpose.

The present Coal Mines Stowing Act is basically wrong as it is only a safety measure. The small 2nd class collieries could not take any advantage out of its funds as the Board does not and cannot extend 100% assistance for voluntary stowing. The Committee of the Union is definitely of the opinion that stowing should be universal and compulsory in all cases that required stowing by allowing 100% assistance to these collieries. For all practical purposes at present stowing funds are being utilised to increase only the output of metallurgical and high grade coals which means waste of valuable national assets. The Committee is of the opinion that much greater progress would have been achieved if the suggestion of 1937 Committee to create a Statutory Authority was given effect to by the Government.

PART II }

(Grading & Exports)

Question 2. The Committee of the Union is of the opinion that if the policy of conservation of metallurgical and high grade coal is accepted by the Coalfields Committee then the emphasis laid on the coal export trade by the Indian Coal Mining Committee, 1925, does not exist at present. The Committee suggests absolute prohibition of export of high grade and metallurgical coal from India. If, however, any special measure for pushing Indian coal in foreign markets is found necessary it should be for coals other than metallurgical and high grade coals. The Committee, however, believes that for some years at least India's coal output would not be sufficient to meet the demands of its potential home markets.

Questions Nos. 3, 4, 5 and 6. No remarks to offer.

Question 7. The Committee is in favour of regarding all coals at certain intervals. The grading of sections of seams though leads to certain amount of waste, in some cases it is necessary for different conditions and in thick seams which are worked in more than one section. The Committee further suggests amalgamation of the functions of the Indian Coal Grading Board with the proposed Statutory Board.

Question 8. The Committee is in favour of grading coals both for external and internal markets.

Question 9. No remarks to offer.

PART III

(Port Facilities)

Questions 10, 11, and 12. No remarks to offer.

PART IV

(Railway Facilities)

Question 13. The Committee cannot say definitely that there is not enough railway and other facilities at present to cope with the estimated output of 32 million tons during the next couple of years. Much would depend on the efficient handling and allotment of wagons. Except for a short period in 1944 there was no dearth of coal. Wagon supply is the key to the Coal problem. The Committee is of the opinion that the administration of Coal Control Board (both Production and Distribution side) was chiefly responsible for depressing the coal output, as various restrictions both direct and indirect were placed on small 2nd class collieries which prevented them from increasing their output. The present wagon position in the coalfields served by the E. I. Railway would conclusively prove that full advantage of the existing facilities in the matter of wagon supply that are now available cannot be taken due to either the administrative defects of the Railways or other reasons.

Question 14. No remarks to offer.

Question 15. The Committee of the Union noticed that in the introductory note to the questionnaire issued by the Coalfields Committee there is no mention about the definite recommendation of the 1925 Committee on the question of preferential system of supply of wagons. The Indian Coal Mining Committee of 1925 in page 21 of their Report unanimously recommended that in no circumstances will the system of special or emergency supplies be revived.

The system of special wagon supply introduced under the Coal Control Scheme which is still in force adversely affected most of the collieries producing inferior grades of coal. The fundamental defect of the present wagon distribution system under the Coal Control Order is that both the Deputy Coal Controllers work without any control whatsoever. Various restrictions were imposed from time to time on despatches from small collieries producing inferior grades of coal which resulted in short raising. Instead of encouraging the use of more 2nd class coal the present Coal Control Order encourages the production and despatch of high grade and metallurgical coal. The Committee of the Union would suggest that the recommendation No. 52 page 131, of the Indian Coal Mining Committee

1925 on the question of preferential wagon supplies be given effect to subject to the following and other necessary modifications :—

- (a) That the daily allotment of wagons in the coalfields served by both the Railways be placed under the central control and check by the Statutory Board who should have the full executive power to direct the Railways and to define the principle and order of priority which should be strictly limited.
- (b) That the suggested Statutory Board should have a non-official Chairman.
- (c) That the proposed Statutory Board should also deal with the applications for sanction, grant and allotment of assisted sidings and loading spaces, by the different collieries.
- (d) That in calculating the bases of wagon supply of a colliery, stocks held by the colliery should not be taken into consideration.

Questions 16 and 17. No remarks to offer.

Question 18. The small 2nd class collieries generally experience great difficulties in getting Siding accommodation and loading spaces for various reasons. Cases of undue preference and unreasonable refusals are not wanting. The Committee of the Union strongly suggest that in future sanctions for Sidings and allotment of loading spaces should not be left in the hands of the respective Railways but should rest with the proposed Statutory Board. The Committee also suggests that Ropeways may be constructed by the Railways where it is not possible to construct or extend a railway line for surface difficulties.

Questions 19 and 20. No remarks to offer.

Question 21. The Committee approves the suggested group system of freights in Raneegunge field on a just and equitable basis.

Question 22. The Committee does not consider this as a practical proposition.

PART V

(Raising Cost)

Question 23. No remarks to offer.

Question 24. The Committee of the Union is definitely of the opinion that the use of coal-cutters adversely affects the interest of labour. As at present, the coal cutting machineries are mostly used at collieries producing high grade and metallurgical coals which, the Committee feels, should be conserved. The Committee is of opinion that the use of coal-cutters not only affects a large number of miners but also depresses the coal markets as it was found in the past that in their anxiety to dispose of the large output got by using coal-cutting machines the collieries concerned depressed the price level of coal to an uneconomic level so much so that in 1934 a Coal Restriction Scheme was seriously proposed by the

owners of collieries producing high grade coals to restrict the output of coal and to stop the re-opening of the closed down collieries. The coal cutting machines may be useful and a necessity in certain deep mines but its use should not be encouraged for reasons stated above. Besides, the 2nd class mines do not generally require coal-cutting machines.

Question 25. No remarks to offer.

PART VI

(Railway Coal Requirements)

Question 26. The Coal purchase policy of the Railway Board has for more than two decades adversely affected the coal trade and arrested its normal growth. The Committee do not want to reiterate all these facts as these are already in the records of the Government.

Questions 27, 28, 29, & 30. No remarks to offer

PART VII

(Stowing).

Question 31. As previously stated, the present Stowing Act being only a safety measure the 2nd class collieries could not avail of the opportunity of voluntary stowing for economic reason. It is impossible to adopt voluntary stowing measures in 2nd class collieries unless 100% assistance is given to them. The Committee is of the opinion that the Act should be amended to make the stowing compulsory with 100% assistance. This would save a large quantity of 2nd class coal that is now being wasted.

Question 32. No remarks to offer.

PART VIII

(Miscellaneous)

Question 33. The Committee of the Union is strongly in favour of amending the Land Acquisition Act for acquisition of surface rights over the mines by a quicker process. Some relief in this direction is available in Bihar through Section 50 of the Chota Nagpur Tenancy Act.

Questions 34 and 35. No remarks to offer.

Question 36. The Committee suggests that the Fuel Research Section should be associated with the proposed Statutory Board and the Coal Grading Section should also be amalgamated with it.

Questions 37 and 38. No remarks to offer.

Question 39. The Committee suggests more facilities for mining education in the coalfields and enlargement of its present scope so as to make it available to the miners' Sirdars and miners as well. The Committee also suggests the introduction of State-aided cottage industry like poultry farming, weaving, basket making, etc., under the supervision of Colliery Managers.

Question 40. The Committee suggests reorientation of the present policy of the Welfare Board. The Committee proposes that the fund of the Welfare Board be utilised for improving all the villages (both sanitation and housing) within the coalfields and for helping the collieries by contribution from its fund to improve their respective miners' quarters.

Questionnaire II

PART I

(Constitutional).

Question 1. In the opinion of the Committee of the Indian Collieries Union it is desirable that the powers to levy cesses and taxes on coal industry and mines and minerals in general should be vested in the Central Government. The constitutional position of the provincial Governments of Bihar and Bengal *vis-a-vis* the coal industry is far from satisfactory. The rates of cesses and taxes on Coal industry in respect of Road cess, Health Boards, Water Boards in the provinces of Bengal and Bihar are not the same. Their policy and method of supply of food-grains to the mining labour in their respective provinces widely differ. The mining labour in the province of Bihar within Dhanbad subdivision are obliged to pay higher rates for their requirements of life than those prevailing in the adjoining sub-divisions and districts. The methods of levying of road cess in both the provinces are most unsatisfactory. In the province of Bihar, road cess is charged both on profits and on despatches. While the Government of Bihar provided several seats for the Coal Industry in the District Board of Manbhum the Government of Bengal in spite of repeated requests from the trade refused to provide any such seat in the District Board of Burdwan. No other industry in both the provinces pays Road cess. The Committee of the Union is definitely of the opinion that in the interest of the Coal Industry, it is necessary to have a common and uniform policy which is not possible under two different provincial Governments.

Question 2. The Committee agrees with the view that there should be one separate department of the Government of India in charge of an Honourable Member of His Excellency The Viceroy's Executive Council to deal with all matters affecting the coal industry in particular and miners and minerals generally.

PART II

(Economics of the Coal Industry).

Structural Organisation of the Industry

Question 3. The present structure of the different units of production in the coal industry in the opinion of the Committee is not helpful for its healthy growth on national lines. The various conflicting interests within the trade itself make it impossible to develop the industry on sound economic basis. The present main structures of the units are as follows :—

(a) *The Indian Mining Association.*—A large number of big collieries producing mostly high grade metallurgical and steam coals chiefly worked under European management who also control many other important industries. Their interests and policy are in many instances diametrically opposed to the interests of 2nd class mine-owners mostly owned and managed by Indians under private management. There are some Indian members attached to the Indian Mining Association.

(b) *The Indian Mining Federation.*—It was originally started for the purpose of safeguarding the interests of 2nd class mine-owners. For some years past, however, for various reasons the Executive of the Federation is more or less supporting the views of the Indian Mining Association or rather following their advice though it is an admitted fact that the interests of the big collieries and small collieries are not identical.

(c) *The Indian Colliery Owners' Association.*—It was started some years back by some members of the Indian Mining Federation who seceded from the parent organisation due to disagreement on the question of representation on the different bodies. Recently it has been found that although the Indian Colliery Owners' Association claim like the Indian Mining Federation that they represent the small 2nd class collieries, in actual practice the executive of this body is more or less collaborating with the Indian Mining Association. There are many common members in all the above three coal trade organisations.

(d) *The Indian Collieries Union.*—It was started in 1944 by a large number of small colliery owners mostly producing inferior grades of coal who were dissatisfied with the activities of committees of the Indian Mining Federation and the Indian Colliery Owners' Association. They felt that the case of the 2nd class mine-owners was going by default. For the purpose of clearly explaining the viewpoint of this Union, a copy of its letter dated 28th August, 1945 addressed to the Secretary, Department of Supply, Government of India, is enclosed for ready reference of the Coalfields Committee. This would clearly show under what circumstances this Union was started. A reference may be made to Khan Bahadur G. Faruque, C.I.E., the then Deputy Coal Commissioner on this point.

(e) *The Railway-owned collieries.*—These are worked under the direction of the Chief Mining Engineer, Railway Board, who is also the purchasing authority of all coals required by the Government. He is also the President of the Indian Coal Grading Board, Indian Soft Coke Cess Committee and the Deputy Coal Commissioner (Production) dealing with distribution of stores as well. He exercises great influence over the coal trade due to his position.

(f) *Collieries within the Indian States.*—These are owned by some Indian Railways and individual companies and persons.

(g) *Collieries owned by industries.*—Iron and Steel Companies, Cement Factories and a few other industrial concerns owning collieries and operating these under their own management.

The Indian section of the coal industry is chiefly composed of the following major groups and these facts have direct bearing on the structure of Coal Industry :—

- (1) Railway Colliery Raising Contractors-cum-Colliery proprietors.
- (2) Company-owned Colliery Raising Contractors-cum-Colliery proprietors.
- (3) Monopolist alers-cum Colliery proprie-

- (4) Foodgrain and consumer goods suppliers-cum-Colliery proprietors.
- (5) Mine-owners owning collieries producing mostly 2nd class coal. There are some better grade collieries owned and worked by individual Indian mine-owners.

From the above it would be apparent that the interests of the different groups are in many cases opposed to each other. A careful scrutiny of the lists of members of the Indian Mining Association, Indian Mining Federation and the Indian Colliery Owners' Association would show the overlapping nature of the membership. Due to the provincial Governments of Bengal and Bihar insisting that foodgrains and consumer goods and stores would be distributed only through these three bodies, the members of this Union were obliged to become members of either of these three bodies, fully knowing that their interest would not be properly served by these organisations in all matters.

As an instance, the Union would point out that the Indian Mining Federation and the Indian Colliery Owners' Association without consulting their individual members agreed with the suggestions of the Indian Mining Association to continue the preseat control system for another year.

The picture of the present structure of the coal industry would not be complete without any reference to the part played and now being played by the Deputy Coal Commissioner (Distribution). The unrestricted powers without any supervision by any Board and the undefined principle of priority allotment of coal wagons has reacted on the output of small second class collieries. In short the policy of allotment and distribution of wagons is influenced by the principle that the raisings from the second class collieries should be indirectly restricted and depressed by putting various restrictions whenever it is found that sufficient number of wagons would not be available to meet fully the demands of all collieries. Ways were found to extend special wagon facilities when sufficient coals were available, to collieries producing high grade coals. Orders for certain consumers were shut out from second class collieries and forced to be transferred to better grade collieries on the ground that the quality did not justify such despatches. But curiously enough when during rainy seasons coals were scarce at collieries producing high grade coals, orders for the very same consumers were forced upon those second class collieries and despatches to their permanent customers were cut off under the Defence of India Act, to ensure completion of such orders. The unrestricted powers exercised not only by the Deputy Coal Commissioner (Distribution) himself but also by his scores of junior assistants have created no doubt, an unhealthy state of affairs in the coal trade. The Committee of the Union would, therefore, strongly urge that in their recommendation the Coalfields Committee would be pleased to reiterate the views of the Coal Mining Committee 1925 that under no circumstances the special supply system should be reintroduced in future.

The Committee of the Union would submit that if a Statutory Board is recommended by the Indian Coalfields Committee to deal with all matters affecting the coal trade, the representatives of the coal industry should be elected direct from the different groups of mine-owners. Such groups should be formed according to the grades of coal produced by each mine. As in other franchise, no weightage in the number of votes should be given on the ground of higher tonnage output. Each big or small should have same number of votes. The relative representative character of the Indian Collieries Union may be estimated from the results of the two recent elections through direct voting by the mine-owners to the Jharia Mines Board of Health and Jharia Water Board. In each of the two elections the President of the Union who was supported by the members of the Union has successfully secured one of the seats by a large majority. A reference to the authorities of these two Boards would corroborate the above statement.

If, however, the Coalfields Committee recommends that the representatives of the trade should be elected through trade organisations the Committee of the Union request that the Coalfields Committee be pleased to allot due quota of representation to this Union and strictly forbid overlapping of membership of coal trade organisations.

Question 4. No remarks to offer.

Question 5. The Committee do not notice any unhealthy factor in the type of alliance between units of coal producers and consumers.

Question 6. The Committee of the Union is definitely of the opinion that the Railway-owned collieries are responsible to a great extent for the unsatisfactory economic condition of the industry. The Government of India used the Railway-owned collieries against market collieries and shaped their coal purchase policy accordingly in the past till recently when the prices of coals of different grades have been fixed under the Colliery Control Order.

Ownership and Management

Question 7. The Committee suggests that as a first step to solve the problem of the coal industry Government should acquire coal mining royalty rights in permanently settled areas on the lines of Coal Act 1938 the United Kingdom. Government should also take power to revise wherever necessary defective provisions in the existing leases. Differences in the rates of royalties and the terms and conditions of the leases, irregular shapes of the mouzas in some instances resulted in much looking up and waste of coal. As far as the Committee understands in few of the leases rotational method of works is insisted upon.

Question 8. The Committee of the Union is strongly opposed to the proposal of administration by the State of coal properties on behalf of the mine-owners. This would result only

in replacing the different individual mine-owners by a group of raising contractors who in all possibilities might be some of the present influential colliery proprietors, working the mines with the help of State capital.

Question 9. In the event of mineral rights remaining undisturbed only some of the principal terms and conditions of the leases may be prescribed and revised by passing an Act. The Committee of the Union would, however, make it clear that powers to grant any lease or right to transfer any lease must not be restricted.

Question 10. The Committee as already stated is of the opinion that the State should in the first instance acquire the coal mining royalty rights only. Save in the case of those mines producing high grade metallurgical and steam coals which it may be found necessary to conserve in national interest the Government should not control the production and distribution generally. The question of rational use of different grades of coal by the different industries should, however, be left to the Statutory Board who should be guided by the advice of the Fuel Research Board in this respect. The Committee is not in favour of the Government interference in the marketing of coal which should be left to the normal trade channels. What is needed is the statutory fixation of minimum floor price by the Government for each grade of coal, thus ensuring payment of fair wages and sufficient margin to finance proper development of the mines.

Finance

Question 11. The Union is of the opinion that financial assistance, if any, is mainly needed by the small private own collieries. The Union believes that public companies owning collieries will not have much difficulty in drawing capital from the market in respect of economic units. If any provision for financial assistance by the State is envisaged it would surely be a great help to small mine-owners and this would enable them to equip their mines with sufficient machineries and plants to increase their respective output. If the policy of conservation is accepted by the Coalfields Committee then the major problems of the Indian coal industry would be the problems of the second class mines only.

Question 12. No remarks to offer.

Production

Question 13. The principal reasons of low output of coal per head in this county are :—

(a) There is hardly any mining labour as a class. Most of them are agriculturists, and work in mines during their spare time.

Their attendance is very irregular.

(b) Short supplies of wagons specially during the best raising periods.

(c) Inequitable methods of distribution of wagons at collieries producing inferior grade of coal, thus preventing full occupation of mining labour at these collieries.

(d) Want of prohibition in the mining area.

(e) Low standard of living.

Question 14. In the opinion of the Union to increase the *per capita* output of coal the following measures are necessary :—

(i) Increase of wages relatively to increased production by the mining labour.

(ii) Introduction of prohibition in the coalfields.

(iii) Regular and uniform wagons supply in the coalfields.

(iv) Improvement of housing conditions.

Question 15. The appointment of coal raising contractors may be necessary to improve output in big collieries but not required at small mines.

Question 16. The Union is definitely of the opinion that the best way to make up the deficit in the production of coal is to help collieries producing second grade coal. The Union believes that most of the collieries producing better grade coal have reached their limit of raisings.

Question 17. The Union is not in favour of establishing a Central Marketing Agency for sale and distribution of coal. Such agency if established, the Union fears, would create a ring of powerful dealers and monopolists. The Union is in favour of distribution of coal through normal trade channels. The Union believes that all consumers are fully aware of the different qualities of coal and the proper economic price for the same based on their practical experience in the past. As already stated only a statutory fixation of minimum price of each grade of coal would be sufficient to meet the situation. The Union is in favour of regulating the use of different grades of coal in different industries, and suggests the following scheme for consideration of the Committee :—

1 State

(a) The Coal mining royalty rights should be purchased by the State.

(b) Collieries producing exclusively high grade metallurgical and steam coal should be conserved and or nationalised by the State.

(c) Raisings of such coals should be stopped at Railway-owned collieries.

(d) Restrict the despatches of such coal only to specified industries from collieries producing different grades of coal.

(e) Restrict export of high grade metallurgical and steam coal.

(f) Restrict the use of such coal in Indian Railways and other industries.

(g) Introduce lower freight rate for inferior grades of coal to encourage its use.

(h) An unified Statutory Coal Board should be established with the combined functions of Coal Grading Board, Soft Coke Cess Committee, Welfare Board, Stowing Board, Rescue Board. The Fuel, Research section should be attached to it.

- (i) A new department should be attached to the proposed Central Coal Board for extensive survey and prospecting of coal bearing ends both explored and unexplored and for analysing each seam that would be tapped in the bore holes. Further survey of the lower Jharia seams and of Raneegunj series seams should be made.
- (j) Unification of all cesses and taxes including Road cess by the levy of one unified cess to be realised along with the railway freight in each consignment at the destination.

Regarding the respective roles of the collieries, the Managing Agents, the Proprietors, Merchants and Brokers, and consumers of coal, the Committee do not desire any change in the normal practice of the coal trade.

Fixing of sale quotas in the opinion of the Committee is not necessary because in its opinion production of coal for some years to come would not much exceed the country's potential demand for coal. This is open to serious objection as it would in effect restrict the output of coal.

Question 18. The Committee fully agrees that the condition precedent to the proposal must be to have at first a complete analysis of all grades of Coal. War time practice should be discarded.

Question 19. No remarks to offer.

Question 20. The responsibility for good loading in normal times was always on the collieries. It is the interest of every colliery to satisfy its customers. The consumers must have the free choice to choose their own coal subject to their selecting such coal from the grades as would be specified by the Fuel Research Board with a view to the rational use of coal.

Question 21. The present standard of the different sizes is quite satisfactory.

Transport

Question 22. The distribution of wagon on a zonal basis based on transport economy and on fuel value will stand in the way of the proposed rational use of coal by the different industries. In that event consumers who should use inferior grades of coal but placed at a longer distance from the coal fields will have to use high grade coal.

Question 23. The Union has no objection to the pooling of railway freights provided it is fixed on an equitable basis.

Question 24. The Union has already expressed its view that to encourage the use of more inferior grades of coal by the industry the railway freights for inferior grades of coal should be fixed at a lower rate.

Question 25. The principal of fixing the railway freights should be what the traffic can bear.

Question 26. The Union is strongly opposed to any concession in freight rates for train-loads of coal on the following grounds :—

- (1) It would lead to the increased number of rake supply which would reduce appre-

ciably the available number of wagons for other collieries.

- (2) The consumers would necessarily concentrate their orders on big collieries having large Siding accommodation. This would result in maldistribution of orders and might affect pilot capacities in certain sections.

- (3) It would place some industries at a great advantage over the small industries due to their lower fuel bills.

Question 27. The introduction of numerous routes and vias during war-time has definitely complicated wagon supplies in the coalfields. This question should be thoroughly examined. Fewer routes and vias are desirable.

Question 28. No remarks to offer.

Price and Profits

Question 29. Having regard to the conflicting nature of interests of the different groups in the coal industry, it is hardly possible for the coal trade to fix prices on voluntary basis. The Union is of the opinion that free interplay of law of supply and demand should be allowed after fixing minimum prices by legislation for the different grades of coal. The Union is definitely of the opinion that Government interference beyond that would not be helpful. If regular supplies of wagons at the coal-fields are ensured, there is little possibility for the prices going up very high.

It is very difficult to estimate a fair margin of profits for the interplay of supply and demand as the industry does not know what the taxation burden and other obligations there would be on its shoulders. A free competition is the best method to level the prices.

Question 30. The Union is of the opinion that it would provide sufficient impetus for achieving stable conditions in the industry if minimum prices are fixed for coals required by the Railways and the Steel Companies.

Question 31. If it is at all found necessary for Government intervention in the matter of fixation of coal prices it should be left to a representative Board. In that event representative of the coal producing interest should be elected by direct voting by the mine-owners in general from the different groups arranged according to grades.

Question 32. The present margin in the rates of the different grades of coal as classified under the Colliery Control Order is considered fair.

Question 33. As already stated much would depend on the burden of taxation. Due to different conditions in each mine and terms of lease as to royalty it is not possible to calculate an approximately uniform scale of profits.

Question 34. Middleman's Commission in the opinion of the Committee is not a major problem in a free coal industry. The consumers, if they so choose, can draw their supplies of coal direct from the collieries.

Taxation

Question 35. The coal industry is no doubt subjected to unduly heavy and multiple cesses and taxes. The Union strongly supports the view of the unification of all cesses and taxes including Road cess by levying one unified cess which should be collected along with the railway freights on each consignment of coal at the destination. All district and local bodies should be paid out of the Central Fund such sum as would be assessed on the average income of certain number of years of these local bodies from the coal industry.

National and International Commercial Policies

Question 36. The Union is of the opinion that in the interest of India it would be better to have some special provision in the International treaties and trade agreements to ensure reciprocal imports into this country of other minerals which India needs from those countries who would require India's coal.

Question 37. Having regard to the different social and economic conditions in this country the Union is of the opinion that international conventions in respect of colliery labour without taking these into consideration have not helped much either the mining labour or the industry.

Conservation of high Grade Metallurgical Coal

Questions 38 to 44. No remarks to offer.

Question 45. The Union is definitely of the opinion that in view of the limited deposits of metallurgical coal in this country a definite case exists for restricting metallurgical coal only for the use in Iron and Steel Works and heavy chemical industries.

Question 46. Same answer as in question 45.

Question 47. Please refer to the answers to the question No. 17.

Question 48. If reduction in output results in restricting the use of metallurgical coal, mine-owners owning such collieries should be given the choice of either running the collieries with restricted output and/or by raising other grades of coal or to offer these collieries to the State. Prices are to be fixed by a Board constituted on the lines of the Coal Act 1938 of U. K. subject to such modifications as would be found necessary. The State in that event may run these collieries either with restricted output or keep it under the care and maintenance basis, whichever would be found less costly.

Question 49. The Union has already expressed the opinion in answer to question No. 17 that it is desirable that the State should own collieries exclusively producing metallurgical and high grade coals. The statutory restriction of mining of high grade metallurgical and steam coal, if imposed on a colliery, should be fully compensated. The State should choose either to take over the colliery or to grant due compensation either of recurring or non-recurring nature or both.

PART IV

(Conservation of High Grade Steam Coal.)

Questions 50 to 53. These questions have been extensively dealt with by the 1937 Committee. The Union has nothing further to add to the views expressed there in.

PART V

(Conservation Generally.)

Question 54. The Committee agrees with the opinion expressed on the subject by the Coal Mining Committee 1937. The Committee is unable to say whether there has been any improvement in this matter in recent years.

Question 55. The Union is of the opinion that the existing mining regulations need further careful revision, specially in respect of thick seams and of seams of inferior grades with due regard to safety. The Union thinks that the regulation about the height and width of the galleries and sizes of the pillars in these mines should not be the same as are necessary in cases of high grade and deep mines.

Question 56. The Union agrees with the views expressed by the Coal Mining Committee 1937 that rotational working should be controlled.

Question 57. The Union is of the opinion that stowing should be enforced in all cases for conservation by amending the Act accordingly. At least all collieries producing inferior grades of coal must get 100% assistance from the Stowing Fund without which it would not be economically possible for such collieries to adopt sand stowing.

Question 58. The State should arrange for securing and delivering sand to the collieries for the purpose of stowing by acquiring sand rights. Such sand may be distributed from certain Central Depots to the adjoining collieries by overhead ropeways.

Question 59. No remarks to offer.

Question 60. Compulsory sand stowing in all such cases would solve this problem.

Questions 61 to 64. No remarks to offer.

PART VI

(Mining Leases and Fragmentation.)

Question 65. No remarks to offer.

Question 66. Absence of any specific provision and restriction imposed in many of the existing leases for in stroke and outstroke working stands in the way of better working facilities and increase in output from adjoining areas owned by the same Colliery Company. Different rates of royalty on coal are also factors that are to be considered in dealing with this question.

Question 67. No remarks to offer.

Question 68. Government should not interfere in fixing rates of royalty or Salami unless it is decided to nationalise all the coal mining royalties.

Question 69. The Union would point out that small holdings do not necessarily mean uneconomic holdings. Underground working conditions, siding facility, pressure of water in the mine, geological disturbances, thickness of seams depth of the seams and number of seams are a few of the major factors which are to be considered in this respect.

Questions 70 and 71. Uneconomic condition is not and cannot be a permanent feature of any mine. Besides the factors described in answer to question No. 69, market conditions and wagon supply position at the time are to be taken into consideration. It would be wrong to describe a colliery an uneconomic unit only on the ground of its small size.

Fragmentation into commercially uneconomic colliery holdings is not desirable. Either the State ownership of mineral rights or the appointment of a Board, not a special officer, to negotiate between landlords and tenants with a view to amalgamation of leases and adjustment of boundaries when suitable, would be the best.

PART VII

(Opening of New Coalfields.)

Question 72. There exist untapped and partially exploited deposits of coal. In answer to question No. 17 the Union has already suggested a creation of a department for the purpose of exploring both tapped and untapped coal deposits. Further investigation in respect of all the lower seams in the Jharia fields and in respect of Rani-gunj series seams should be carried out.

PART VIII

(Administrative Means.)

Question 73. In answer to question No. 35 the Union has already suggested that the unified cess should be collected along with the railway freights from each consignment of coal.

Question 74. The Union fully agrees with the view that an unified single body exercising the functions of all other bodies is an absolute necessity. Representatives of the coal industry on that body should be directly elected by the mine-owners as explained in answer to question Nos. 3 and 17.

Question 75. Unification of the present multiple bodies dealing with utility and health services in the coalfields is equally necessary. The Union fully supports this view.

[ENCLOSURE REF. QUESTION 3 OF QUESTIONNAIRE II).

COPY

THE INDIAN COLLIERIES UNION.

Calcutta, 28th August, 1945.

The Secretary,

Department of Supply, Government of India,
New Delhi.

Sir,

Re :—*Representation of the Indian Collieries Union on the proposed Coal Committee and the different Government Bodies.*

With reference to the above subject ending with your letter No. Coal—127(14) dated 19th April 1945 and in continuation of the Union's telegram dated 13th August, 1945 addressed to you, requesting the Government for a seat on the proposed Coal Committee to represent the interests of the small 2nd class Collieries, I have been directed by the Committee of the Indian Collieries Union to address you as follows :—

The Committee of the Union have no doubt that the facts as stated in their telegram dated 13th August 1945 and the contents of their letter dated 17th March, 1945 addressed to you would fully convince your Government that it was not without sufficient reasons that a large number of Collieries in the Bengal and Bihar Coal-fields had thought fit to organise a new body to safeguard their interests. If the Central Government would as requested appoint a Committee to enquire into the grievances of the small collieries in respect of rice supply, distribution of consumers goods by the Joint Pool and call for the Auditor's reports for the years 1943 and 1944 from the two Indian Coal Trade Organisations, the Committee of the Union have no doubt that enough evidence would be forthcoming to justify the starting of a new organisation.

The Committee of the Union would at the same time like to reiterate its previously expressed views that it considers that multiplication of trade organisations is not desirable unless it is found to be an absolute necessity.

In this connection the Committee of the Union would like to state that very recently the Deputy Coal Commissioner (Distribution) informally enquired from the representatives of the Union about their major grievances against the existing Indian Coal Trade Organisations and what are the suggested remedies that would satisfy the members of the Union so that they may continue and/or join as members of the two existing Indian Coal Trade Organisations without starting a new one. The President of this Union, as desired, informally suggested to the Deputy Coal Commissioner (Distribution) that if the two Indian Coal Trade Organisations generally accept the following proposals subject to such reasonable modifications as would be found necessary, he

thought it would meet the situation and remedy matters.

- (1) The executive of both the bodies should consist of only experienced men and the heads of the executive should be strong men with wide experience who would be prepared to subordinate their respective personal interests to those of the trade as a whole.
- (2) The representatives of the two Organisations on the different bodies should also be selected on the same principle from persons who would best fit in the particular job and not with a view to balance any party politics.
- (3) The Articles of Association and Rules of the two Organisations should be altered and/or modified to suit the present conditions to ensure larger representation of small collieries by election on group system based on output of each member-colliery.
- (4) The Secretariat and the Office staff of each of the two bodies should be completely overhauled and more efficient staff be appointed.
- (5) The distribution of Food, consumers goods, special wagons and other facilities that are now being done by the two bodies should be made by a Joint Committee representing different sections. They should be selected from those members who have no direct or indirect business interest in dealing with such commodities. The funds of the Pool must be subject to full audit by joint auditors and open for inspection to all participating members and be kept separate from the funds of the two organisations.
- (6) A full and open enquiry about the past and present administration and expenditures of the Joint Pool in respect of rice, consumers goods and stores should be made by an independent Committee.
- (7) As the two trade organisations claim that they not only represent their own members but also the entire coal industry in the country, all collieries whether members of any of these two bodies or not should be allowed to participate in the Pool, if they so desire subject to the same conditions.
- (8) A Joint Council consisting of not more than 7 members be appointed— 3 from each body and one eminent public man outside the ordinary membership who would be elected as an Honorary member of either of the two bodies to deal finally with all questions and matters in relation to the Central and Provincial Governments. Selections of representatives of the two organisations on the different bodies should be made by this Council and not by the respective Committees.
- (9) There should be no overlapping of membership of the two bodies. A colliery must choose to be a member of either of the two bodies but not of both. This

would create a healthy competition between the two bodies for rendering better services. The members would then for their own interests join the body where they would get better service.

- (10) None of the two Coal Trade Organisations should realise any extra amount other than their respective subscriptions from its members for rendering any service whatsoever.

The Committee of the Union understands from its President that the Deputy Coal Commissioner (Distribution) when shown the above proposals expressed his personal views that the suggestions seemed to him reasonable and deserve careful consideration by the other two Coal Trade Organisations. He, the Committee is informed, subsequently communicated the substance of these suggestions to the heads of the other two coal trade organisations who, the Committee understands, did not show any inclination to move in the matter and square up matters. The Committee submits that the very fact that the other two coal trade organisations have entirely ignored such reasonable proposals would conclusively prove that the apprehensions and grievances of the collieries represented by the Indian Collieries Union are not without foundation.

Under the circumstances stated above the Committee hopes that your Government would be pleased to reconsider its decision and extend its recognition to the Indian Collieries Union as requested in its letter dated 17th March, 1945.

I have the honour to be,
Sir,

Yours most obedient servant,
Sd/-

Secretary, Indian Collieries Union.

INDIAN COALFIELDS COMMITTEE

Supplementary Answers by the Indian Collieries Union

With reference to the question put to our representative as to whether the Union has been recognised by the Government of India, since the letter dated 28th August 1945 on the subject was addressed by the Union to the Department of Supply, Government of India, the following additional facts may be noted :—

(1) The Indian Collieries Union has since been registered under the Indian Trade Union Act XVI of 1926 in the Province of Bihar. Printed copies of its Rules and Regulations have already been sent to the Committee for its information. Normally, all registered Trade Unions are recognised both by the Central and Provincial Governments.

(2) The Union was established in August 1944 and only a few months later on the 10th December

1944 when the Hon'ble Supply Member visited Dhanbad to have a conference with the coal trade representatives he invited the Union's representative at the conference to state their case and a separate memorandum on behalf of the Union on the then conditions of the coal industry was placed before him.

(3) The Department of Labour, Government of India, recognised the Union as a separate trade organisation. In their notification No. M263(3) dated 26-6-45 which was published in the *Gazette of India*, the name of the Indian Collieries Union appears as one of the recognised bodies to whom official copies of such notification were sent. As however the constitution of the Soft Coke Cess Committee could not be changed without amending the Act, the Union was not allotted any seat on the same.

(4) On the 13th of June 1945 in their letter No. M.253 (2) II the Government of India in the Department of Labour invited the Indian Collieries Union like other recognised bodies to express their opinion on the Mines (Amendment) Ordinance 1945, published in the *Gazette of India Extraordinary* issue of 26th May 1945.

(5) Since the Union addressed the letter dated 28th August 1945 to the Department of Supply, the Deputy Coal Commissioner (Distribution), apparently on the advice of the Department of Supply, has been placing lump orders from time to time for distribution amongst its member collieries as he was doing in the case of other coal trade organisations.

QUESTION NO. 36.—NATIONAL AND INTERNATIONAL COMMERCIAL POLICIES.

The Committee would like to add the words 'other commodities' after the word minerals used in their answers to question No. 36.

The names of the minerals and other commodities that India would require are given below :—

- (1) Mineral oil
- (2) Petroleum
- (3) Graphite
- (4) Tin
- (5) Wolfram
- (6) Lead
- (7) Zinc
- (8) Copper
- (9) Aluminium
- (10) Rubber
- (11) Rice
- (12) Burma Teak

ORAL EVIDENCE OF MESSRS. S. C. GHOSH AND B.K. ROY REPRESENTING THE INDIAN COLLIERIES UNION.

Question.—Could you tell us something about the representative character of your Union ?

Answer.—The Union was started sometime in 1944. The present number is 124 and the annual output of its members is near about 2 million tons.

Question.—Is there any overlapping membership ?

Answer.—Yes, there must be. All our members have to become members of the other bodies to get their food supplies and consumer goods. This overlapping you will find in other Associations also.

Question.—You have stated in reply to question 1 that stowing should be universal and compulsory in all cases that require stowing. In answer to question 57—second questionnaire you have stated that stowing should be enforced in all cases for conservation. Is it your view that stowing for conservation is justified in respect of inferior grade coal?

Answer.—Yes, that is it. We should not waste any class of coal.

Question.—Stowing will necessarily add to the price of coal. Is it desirable, therefore, to increase the price of inferior grade coal used by the poorer classes in this country ?

Answer.—It is desirable in the national interest and what is now termed as poor coal may be the best coal later on. Some 25 years ago, ten seam coal was not touched: 11 seam coal was not touched and it was considered as poor coal. Now it is being used.

Question.—If your recommendation in respect of exports is accepted, do you consider that there will be any demand in the overseas market for Indian Coals?

Answer.—Why not? If the second grade coal is suitable for locomotives and our industry here, why would it not be suitable for similar use in other countries ?

Question.—A point is whether if there is a ban on export of high grade coal there will be any markets left for Indian coal overseas. You don't consider it will be to any degree unfortunate if we lose these markets ?

Answer.—No.

Question.—You have expressed yourself in favour of grading coals both for external and internal markets. As you know, for exporting coal a grading certificate is necessary. In regard to internal markets, what is your idea ? Should it be made compulsory ?

Answer.—Yes, I think so. I would explain why. Our smaller collieries have generally got one or two inferior seams and we suffer a great disadvantage because of the fact that some of the big collieries have got different grades of coal in the list published by the Grading Board only the graded seams are mentioned and the consumer does not know whether that particular colliery has got inferior grades of coal. It is generally the belief of consumers that that particular colliery raises only that graded coal and not others and it stands in our way. We would prefer that all the seams be graded both for internal and external markets.

Question.—Would you go further and advocate compulsory regulation of use ?

Answer.—For that we have suggested rational use.

Question.—You state that the administration of the Coal Control Board was chiefly responsible for depressing the coal output. This Board was established by Government at a time of great scarcity of coal and the principal purpose was to increase the output of coal. Why do you consider that it led to the contrary result?

Answer.—So far as small collieries are concerned, I would give you the picture. According to the Control Order there is no obligation on the part of the Controller to issue despatch instructions for the full quantity raised although it is verbally promised that every ounce of coal will be taken up. The result was that whenever during the best season good coal was available, orders were not placed for IIIA & B coal on small collieries with the result that they had to curtail raisings. It was openly said by the Supply Member at Dhanbad that they did not want to restrict the output of any coal, good, bad or indifferent; this is the actual language used. If that is so, why were orders not placed and the full quantity not despatched?

Question.—Question 15. You have given us certain ideas as to how this question of wagon supply should be dealt with in future. Your suggestion is that there should be a statutory board which should have the full executive power to direct the railways and to define the principle and order of priority which should be strictly limited. What, in your opinion, should be the proposed order of priority?

Answer.—The order of priority as defined by the now defunct Wagon Supply Committee is the best.

Question.—But most of them are users of high grade coal.

Answer.—But the question of high grade coal will not come into the picture if you conserve it.

Question.—Is it feasible in normal times to work to a system of daily wagon allotment or should this quota be for a longer period?

Answer.—On the output of the previous 3 months, the quota should be fixed for 3 months and on that basis each day the collieries should be supplied with wagons.

Question.—This statutory Board which will sit in judgment on all matters of wagon supplies, allotment of quotas, etc., what should be its composition?

Answer.—It should consist of representatives of the trade, of consumers, of Railways and of Government.

Question.—What do you consider to be pre-requisite for the grant of sidings or for the installation of a weigh-bridge? What should be the minimum output of a colliery which would entitle it to claim a siding or enforce its request for the establishment of a weigh-bridge?

Answer.—In the case of assisted siding, before it is granted, the Railway investigates what the

potential capacity of that colliery is. When a colliery applies for a siding, the first thing the Railway considers is what the distance of the siding from the Main line is and the quantity of traffic to be moved. In the case of assisted siding, except the cost of permanent way everything is paid by the collieries and not only that, if at any time, the siding is found not paying, and the Railway is not satisfied with the traffic given, the Railway has the right under the Assisted Siding Terms to dismantle or charge a rental annually for each mile which covers the depreciation and the maintenance charges. This is the first thing. According to us, a colliery cannot be an economic unit unless it despatches one wagon a day, i.e., 30 wagons a month. Therefore, a colliery which is able to produce 25 tons a day should be entitled to receive the privilege of an assisted siding.

Question.—Do you not consider the provision of a siding handling only one wagon a day will mean a considerable disadvantage to the depot station, pilot, operation etc.?

Answer.—Small collieries are not found only in India. In other countries too they have small collieries. If it is possible for those countries to provide pilots for the small collieries, why should it not be possible here? Besides small collieries are generally located in groups adjoining to each other and served by the one and the same pilot.

Question.—Question 24, would you agree that collieries should be encouraged to mechanise so as to increase national output rapidly?

Answer.—We have no objection.

Question.—Do you consider it equitable that industry should be asked to contribute towards the expenses of a Coal or Fuel Research Institute?

Answer.—We have suggested that this should be one of the functions of the Board and that the funds of the Board should come from the cess on despatches of coal.

Question.—What is your view in regard to educational facilities in coalfields? Could you tell me if your constituents have at all taken any positive step in the matter of providing educational facilities?

Answer.—Some of the collieries have got free Primary School. But the real trouble is this: the miners are reluctant to send their children to the schools. In my own colliery, there has been tremendous difficulty in getting children to school. The miners say that if the children are engaged during the day-time, there is no one to look after the cattle, poultry and lots of other things. We have to adjust the time very often. We would like them to be educated.

Question.—Should the education be made compulsory?

Answer.—We would prefer that.

Question.—What are the defects in the organisation of the coal industry from the production angle?

Answer.—It is generally with the mine owners producing high grade coals. They want to control the policy of the Government and to depress the output of low-grade coal in various ways.

Question.—Is that a general criticism of the Managing Agency system? Because they are the people who own collieries producing high grade coal.

Answer.—Not exactly. Of course, the Managing Agency system is not responsible for this. It is responsible for other things, not for decreasing the output of low grade coal.

Question.—Do you agree that the Managing Agency system is a help to the coal industry?

Answer.—I think it has outlived its usefulness.

Question.—Would you suggest that some sort of limit be placed on the extent of ownership of collieries in the hands of consumer interests?

Answer.—We are not in favour of restricting the liberty of any individual owner or consumer. If they want to produce, let them produce. But they must not be allowed to use coal otherwise.

Question.—If Tatas were permitted to buy all the metallurgical coal bearing areas, does that seem to be a healthy feature?

Answer.—Of course, from the national point of view it may not be, but from the collieries' owners' point of view there is nothing wrong therein.

Question.—Why should not the railway have their own collieries in the same way as the steel works?

Answer.—Because it is the State. That is a separate institution altogether, and a most objectionable feature.

Question.—You are totally opposed to nationalising things?

Answer.—Well, if it is nationalised, no question arises whether the railways or others own. So long as it is not nationalised, we strongly object to the railways owning or increasing the number of collieries. I would also like to point out one thing. Recently, the railway collieries are despatching coal to public consumers. And for some years past, they are despatching their coal to Tata Iron & Steel Company, Limited, and other steel works, I am told. That shows that they are raising metallurgical coal and wasting a national asset.

Question.—Acquisition of royalty rights: What objects did you have in view when you made that recommendation? What problems of the coal industry will that step solve?

Answer.—Acquisition is necessary to adjust the different royalties. And, secondly, to adjust the shapes of the collieries arising out of the boundaries of the mauzas—if you look at any boundary, you will find concave and convex portions throughout. It is not possible unless there is a common ownership to solve all these difficult problems. That is the real object.

Question.—Couldn't these problems of adjustment of royalties rectification of boundaries be solved by legislation?

Answer.—We think it is not possible. By legislation, you will have to encroach upon the rights of others. We are opposed to that.

Question.—You are prepared to recommend the acquisition of royalty rights, but you are not prepared to agree to taking away a few of the owner's rights?

Answer.—Yes.

Question.—After acquisition, if the existing leases are found detrimental to the proper development of the coal industry, would you suggest that they should be disturbed?

Answer.—If in the existing leases it is found that a particular colliery or plot is not an economic unit or a few adjoining collieries, if amalgamated, would be a more economic unit, the Government should acquire the colliery or let the colliery which has the major share in that portion to acquire the others to make it an economic unit.

Question.—On prices, could you say whether fixation of minimum price for any commodity is a desirable procedure for Government to adopt? Is it a workable procedure?

Answer.—We suggested that to ensure payment of good wages.

Question.—Do you agree to a minimum wage?

Answer.—Yes, we must, subject to one condition, viz. that the minimum wage is linked up with the production and also prohibition is introduced so that labourers do not spend the money in other ways. Subject to these two things, we have no objection to fixation of minimum wages.

Question.—Would you also agree to a maximum price?

Answer.—Yes.

Question.—In regard to the central marketing agency, you have indicated your apprehensions that it would create a ring of powerful dealers and monopolists.

Answer.—Yes. Some years ago the DCC(D) strove towards this by appointing a Marketing Board in Calcutta, and also appointed agents throughout India. The result was that the coal disappeared and there was a tremendous abuse right through. Mr. Neogy may tell you how these things happened.

Question.—Would you look at it from another angle? A central marketing agency under the auspices both of the Government and of the industry may facilitate the distribution of coal according to its best and scientific uses?

Answer.—No. The less the Government interferes the better it will be.

Question.—At the same time there will be a guarantee to the second-class miners that all their off-take will be taken up by the marketing agency.

Answer.—We don't want that guarantee. It will react on us adversely.

Question.—Since you favour the regulation of the use of coal, how would you put that into effect? What machinery would you suggest?

Answer.—No machinery is necessary. You will have to declare that these grades of coal would be allowed to such and such an industry and there is automatically enough machinery there. The Railways who book the coal will see whether this coal comes under this grade and may be booked to cotton mills or paper mills or loco, etc. Our idea is that by legislation you declare that this grade of coal should be used by this industry or that industry.

Question.—Suppose that industry does not do that, prefers to use a different type of coal?

Answer.—Then there must be some way out. Laws are there; when somebody breaks them there must be some way.

Question.—Would not a body like a central marketing agency be the ideal agency for the purpose of enforcing use?

Answer.—To tell you frankly the very name makes us nervous.

Question.—You have stated that you do not desire any change in the normal practices of the coal trade in reference to merchants, brokers and consumers are concerned. How do you reconcile that with the enforcement of the regulation of use of coal?

Answer.—That is a quite different thing. Subject to the regulations the present position would be automatically adjusted. We do not want that the trade channels, the merchants, the brokers and consumers, should be disturbed.

Question.—The services which brokers used to render in the past were to supply the consumer with the best coal suitable for his purposes. Now you are restricting the use of certain classes of coal for certain classes of industries. So the brokers really should not remain in the picture?

Answer.—There we disagree. The services which the Brokers in the past rendered to the consumer were not only for securing the best class of coal but for financing them, for paying Railway freights in advance, paying the collieries, etc. The best coal is not the criterion. That might be one of the objects but that was not the principal object and their work comprised also getting wagons regularly, looking after the loadings and many other things.

Question.—You have indicated your opposition to the fixation of sales quotas. Why?

Answer.—Fixing of sales quotas in our opinion is not necessary unless it is desired to restrict the output.

Question.—You have suggested that the middleman's commission is not a major problem. Can

you envisage a time when all the middlemen would get together and form themselves into a marketing agency? Would there not be any danger to the industry?

Answer.—We cannot envisage that. There would not be any such thing in the future, because the consumers would then come direct to us. In the past, the consumer came to us direct and the result was that the ring was broken.

Question.—You have suggested that the State should own collieries, producing metallurgical and high grade coal. That would involve certain mines being acquired by the State; it would also involve payment of compensation. Have you any idea on what basis this compensation should be paid?

Answer.—On the calculation made by experts about the tonnage of coal available, still left to be worked, and other factors.

Question.—Question 55. In what respects do you think the Mining Regulations need amendment?

Answer.—We have consulted some of the Managers. The general feeling is that some of the regulations need to be revised, especially those about working of thick seams and seams that are very close to each other. It is a technical matter and we cannot express a very authoritative opinion on that point.

Question.—You have suggested that stowing should be enforced in all classes for conservation. This cannot be done overnight and so can you suggest any order of priority in which the problem should be tackled?

Answer.—Of course, the first thing is that thick seams should be stowed. As regards the order of priority, it should be left to the Committee of experts with the sole object of conserving coal as much as possible; they should also see the position of each colliery, whether it needs help immediately or it can be helped later on.

Question.—What are your views about the proper size of a colliery unit from the point of view of rationalised development of the industry, from the point of view of coordinated development of the national assets of the country, so that there is no loss in extraction?

Answer.—It is very difficult to say. I can give you two interesting examples. The first case is about Mr. Roy's Gonshadi Colliery, the area of which is 150 bighas. The maximum raisings were six to seven thousand tons a month and the work was done most methodically and scientifically and every ounce of coal was taken by Mr. Harrison himself. The first three seams have been practically worked out, 11, 12 and 13. Other pits are being sunk for other seams. The colliery has been working for 20 years. Next, my own colliery. Mr. Harrison knows about it. Three of your technical experts Messrs. Harrison, Kirby and Faruque have been there many times. The colliery is New Gobindpur, and the entire area of the mauza is 133 bighas. I was up till now working only seams. Mr. Harrison has

expressed his opinion that it is one of the best managed and well-kept collieries. Mr. Young has also said the same thing. Mr. Faruque also said that. Not a single complaint was made against any loading from that colliery for the last ten years. The inspector of Mines who was there a fortnight ago said that this is the best colliery he has seen for the last ten years no violation of rules, and every ounce of coal is being extracted very scientifically. Now how could you say that that colliery needs such and such a size? It all depends on the geographical position and management and the number of seams and the depth of the seams and the thickness of the seams. That would be the factor.

46.—WRITTEN EVIDENCE SENT IN BY THE C.P. & BERAR MINING ASSOCIATION, PARASIA C.P.

QUESTIONNAIRE I

1. The conditions still prevail but these are being brought under control gradually. For expediting matters I may suggest an increase in the Inspectorate of the Mines Department.

Compulsory stowing, in my opinion, is not required in the Pench Valley where seams are thinner.

2. I think there is no need to maintain coal Export Trade as India cannot produce coal to cope with her own requirements for the next five years. The question can then be re-examined when coal for export is available.

Questions 3 to 12 remain unanswered due to my views as represented above.

13. Sufficient Railway facilities at present are not available but as the War has ended more wagons, track, Power etc. should be available and siding facilities increased. Further there cannot be lack of trained personnel as they have been discharged from Military service.

Smaller countries like England deal with much greater coal output and it should not be impossible to handle 32 million tons per annum by Indian Railways. This matter requires thorough investigation and I may suggest that a Committee be set up for detailed Examination.

14. No shortage of wagons is experienced in the Central Provinces. Here wagons are supplied on 24 hours loading system.

15. I am in favour of the continuance of the present system of allotment. Reversion to 1940 system is not desirable.

16. No private Weigh Bridges are installed in the Central Province. I am not aware of the policy of G.I.P. Railway on this matter. However, if the Railways are made to pay a rebate at -/1/- per ton the installation can be encouraged. Their installation will be advantageous both to the Collieries and the Railways.

17. The present system is satisfactory. No alteration is desired.

18. A good deal of delay is experienced in getting the Siding Facilities. A central body which should also have the representatives of the Mining Industry, should be established to control the grant of Siding accommodation.

At present for assisted Sidings the earth work and bridge construction are paid for by the Mine Owners and value of track is borne by the Railways. In my opinion the entire cost should be borne by the Railways. The conditions of agreement should also be revised in consultation with the representatives of the mining Industry, especially the clause requiring payment of .9% by Mine owners as maintenance charges should be dispensed with.

19. At present one ton overload and one ton underload is permitted by G.I.P. Railway. In my opinion 2 tons overload and 1 ton underload should be permitted. This will in the long run save a good number of wagons and it will increase the average weight per wagon.

20. Mechanical loading appliances are used by a few Collieries in the Central Provinces for which sufficient open wagons are available.

21. I am not in favour of introducing group system of Railway Freight rates.

22. This will depend whether rates offered are really attractive. I however think most of the consumers will not be able to take advantage of this facility as coal will deteriorate if they get their supplies sufficiently in advance.

23. I am not in a position to give cost per ton of various Mines. However, I am dealing with the profit of element that entered into price while answering question 33 (II Questionnaire). Those figures would give indication as regards cost per ton.

24. In the Pench Valley Area with the exception of Messrs. Shaw Wallace & Co. no other Company has installed Power House. This Company has put in coal cutting machines in some of their mines. The raising cost is reduced by about -/4/- per ton with this installation.

As far as I am aware the aforesaid Company has also not been able to use the machines to their full capacity as their Power House could not cope with the demand. Further there was a shortage of spares etc. during the War.

In the old field the use will depend on the height and width of the gallery and roof conditions. In the New fields people would welcome their use in the development.

25. The Management are always inclined to lay the rails as near as possible to the working face as some saving is affected by the system.

33. As far as I am aware no difficulty is experienced in the Pench Valley in the matter of acquisition of land.

38. No rescue arrangement facilities are provided in the Central Provinces. Two rescue stations; one in the Pench Valley and the other in the Chanda Valley are most essential.

39. Some schools in the Mining Area of Pench Valley are operated by the Independent Mining Local Board. They should be taken over by the Labour Welfare Advisory Committee and run under their supervision. There is need for the opening out of more schools. The Welfare fund should be asked to attend to it.

40. The Welfare Fund should be asked to provide more amenities. This will assist in converting the present migratory coal field labour to become a settled mining community gradually.

QUESTIONNAIRE II

1. The Central Government should exercise control in the matter of :—

- (a) Fixation of coal prices.
- (b) Distribution & Production,
- (c) Fixation of wages,
- (d) Finance,
- (e) Management,
- (f) Transport,
- (g) Taxation,
- (h) Safety,
- (i) Housing, Health & Education and other amenities through the Coal Welfare Fund.

i.e. the Central Government should take powers in all matters except dealing with grant of Leases and Prospecting Licenses.

The Provincial Government should exercise control over the grant of Mining Leases and Prospecting Licenses.

2. A part of control as stated above should vest in the Central Government. It would assist the Mining Industry if a separate department is created under a member of His Excellency the Viceroy's Executive Council to deal with all questions relating to minerals and mines.

5. I agree that close alliance between units of coal production and consuming interests is a better facility from point of view of prices and wages.

6. The influence has been a reduction in the price of coal supplied to Railways and consequent cut down in labour rates and less funds available for further expansion.

7. The Private Ownership has no doubt in the past led to the dissipation of coal resources but the conditions are now being brought under control by the enforcement of new Indian Coal Mines Regulations. I am in favour of Private Ownership.

8. Administration by State would be much more expensive.

9. The Government has control over the power to lease coal-bearing land in the Central Provin-

10. In my opinion National advantage lies in continuing the private ownership in the working of coal mines but distribution-production and marketing should vest in the Central Government as mentioned in para 1.

11. There is no doubt some of the concerns are under capitalised in which case loans may be advanced by Government to such firms on reasonable rates of interest.

12. There may be some cases of over capitalisation in the coal industry in which cases, subject of course to area of leasehold—further development etc., the capital be reduced and paid back to the Shareholders. This will reduce the Divd. enabling such amounts to be utilized for the betterment of Mines.

I am not in a position to quote any specific instances. The matter has to be looked into by examining the Balance sheets of coal companies.

14. Yes, by machined mining operations and providing more siding facilities.

15. In certain cases it has improved the output but on the whole I am not in favour of employing the Raising Contractors. The reason being that the saving which the Raising Contractor makes can be distributed amongst the workers. The system of their employment ought to be abolished. Further I agree that this system has resulted in unsystematic Mining methods.

16. The output can increase to some extent by increasing the siding facilities. In the Pench Valley Area the installation of a Central Power House would also assist in augmenting the output as in some mines the Dip workings are water-logged and water cannot be pumped out unless Electric Pumps are installed. Further the extension of Railway line from Parasia to Digawani should be expedited, (I understand the B.N. Rly. has decided to undertake this project) and again the question of providing a Railway line from Hirdagarh to Kalichhapa—G.I.P. Railway (about ten miles) should be examined.

18. I am of opinion that a complete Analysis of all Indian Coals is a condition precedent.

- 21. Dust below 1/4"
- Slack mixed upto 1"
- Rubble 1/4" to 1"
- Steam above 1"

23. I am against the Pooling system. The reason being that the C. P. coal would be out of picture if pooling is enforced. The coal here is of inferior quality and this field has the importance due to its Geographical position.

24. The Railway Freight should be reduced in respect of Slack, Dust and Shaley coal proportionately on the basis of coal prices.

25. The Freight rates for coal should be influenced by the factors mentioned by you.

26. Yes.

28. I think it would facilitate efficient distribution if common pool of wagons of B. N. Railway & E. I. Railway is operated by a Central Body.

29. I am not in favour of return to free competition as ultimately it would result in cut-throat competition.

The price should be fixed by Government on the basis Coal Control Board as is at present being done.

30. The control of prices should be in respect of all consumers and should not be confined in respect of supplies to Railways & Iron & Steel Companies.

31. See reply to 29. The price fixation machinery should be established on the basis of coal control board.

33. It would depend on the capital invested. However, taking everything into consideration may I venture to suggest that Re. 1-8-0 per ton net profit should be allowed to the Mine Owners (as is allowed to Middlemen, by Coal Control Board) after making provision for everything *e.g.* Workmen's Compensation, Depreciation, Taxation etc.

Profit of element that entered into price after providing for Taxation, Depreciation, Workmen's compensation etc., (in respect of a particular company with which I am connected) :—

	Rs.	as.	ps.	
1936	0	5	5	Some of the Companies have undoubtedly made bigger profit. I have therefore, suggested Re. 1-8-0 per ton.
1939	0	10	7	
1945	0	15	2	

34. The rate of commission has now been fixed by the Coal Control Board at Re. 1-8-0 per ton to Middleman to be realized from consumer. This seems fair to both parties.

35. The Coal Mining Industry should have been given an exemption from E.P.T. during the War. The imposition of this has resulted in the drop of output and has also impeded further progress.

I am not in a position to compare the figures of Taxation with other countries.

The E. P. Tax has now been abolished but further relief for the Coal Mining Industry is desired in the rates of depreciation allowance.

These at present are :—

Machinery excluding Boilers	15%	These rates should be increased by 100%
Boilers	8%	
Shaft & Inclines	7%	
Portable Under Ground Machinery	25%	
Buildings	21½% to 7½%	

Further the Income-tax authorities harass a good deal in the scrutiny of accounts. In my opinion the Limited concerns should not be asked to produce accounts and assessment should be made on the basis of Printed Balance Sheets and Profit and Loss Accounts.

55. Yes. They are adequate.

66. It seems unnecessary to make this provision as "In-stroke" and "Out-stroke" workings are now kept under control with the enforcement of Indian Mines Regulation 77 to 80.

67. The C. P. Government own the Mining Rights and I would suggest that the period for which the lease is granted should be extended from 30 years to 60 years. Further the basis of collection of Royalty is 5% on pits mouth value, without taking into consideration the increased cost per ton. During the pre-war period the rate of Royalty payable was roughly Re. 0-2-6 per ton but now it works out to about Re. 0-10-0 per ton. I think the basis should be revised so that the percentage of collection is reduced with the higher selling rate. In the present circumstances no notice is taken of the increased raising cost.

Furthermore, the leases should be granted to genuine concerns who have shown good results in the past and not to those parties who take it for the mere purpose of sub-letting it to others.

73. The system of collection is adequate but the utilization etc. seems to be very slow. In my opinion red-tapism should be avoided as far as possible and top-ranking men should be put in charge to take decisions for expediting matters and utilize the funds to the best advantage.

For instance the Coal Mines Welfare Fund is being collected since 1944 but so far nothing tangible has been done with regard to hospital accommodation, Child Welfare and Maternity Centres, improving housing condition etc.

75. A separate health department for each coal field should be established under the Coal Mines Welfare Fund Advisory Committee.

Section VII

OTHER ASSOCIATIONS

47. WRITTEN EVIDENCE OF THE COAL CONSUMERS ASSOCIATION OF INDIA, CALCUTTA.

QUESTIONNAIRE I

1—General

Question 1. As consumers we are most interested in the conservation aspect of the problem and from this point of view according to our technical advisers it is unfortunate that the Government has legislated for conservation for the purpose of safety only, as this restricted policy of conservation has led to loss of coal on the following lines, since the recommendation of the Committee were inter-connected and were intended to be acted upon as a whole :—

- (a) Provision of statutory barriers without at the same time the collieries concerned being rationalised and the small holdings concerned being grouped together has not fully served its purpose to prevent loss of coal reserves.
- (b) Concentration on stowing for safety measures without compulsory direction for stowing for conservation tends to abandonment of unstable coal seams in certain areas.
- (c) If the Government had power to direct and enforce a co-ordinated extraction of seams in sequence, much loss of upper seams of coal could have been avoided.
- (d) At present sectional working is permissible and this tends to further diminution of coal reserves.
- (e) If the Government's emphasis is on safety first, that object would have been better achieved if there was general adoption of co-ordinated sequence of coal

is limited to a few wealthy corporations. Without compulsory powers for stowing and without adequate assistance for stowing, conservation of the balance of reserves of these small and medium size collieries cannot be ensured. In order to make the help to these small and medium size collieries, such collieries should be conveniently grouped and where required they may be amalgamated so that sand from the river etc. may be conveniently carried to these group centres with a rope-way system. We must take long, very long views and look forward to a time when our population will be nearly double what it was at the beginning of the century and our industrial activity will be tenfold. Every ton of coal Government can save will be of great value to the future unborn generations ; every ton of coal saved whether it is coking coal or steam or gas coal or second class coal and whether it is used for metallurgical or chemical or power purposes is an asset of increasing value. We are therefore of opinion that conservation of all Indian coals is a prime necessity. With this background in view, our recommendations are—

- (1) Compulsory stowing of all coal both for conservation as well as for safety, wherever necessary.
- (2) Wherever extraction of coal in Co-ordinated sequence is not practicable, compulsory stowing should take place.
- (3) Government should have control over sand or material other than sand required for stowing.
- (4) Government should participate in the capital of any concern, existing or to be, for the operation of rope-way equipment so necessary for the haulage, of sand, to ensure that hire charges of such equipment are reasonable.

When our low grade coal is washed and deashed in future, it will be then considered whether it should not be made available for export.

The encouragement by Government of export of coal, based on a grading system constituted for that purpose, was most ill-advised and it has played havoc with the reserves of metallurgical coking coal and has seriously depleted an irreplaceable asset of the country and sooner the whole policy of export is recast, the better.

Question 3:—The grading adopted by the Grading Board resulted in the recovery of the export trade and also in the ruination of reserves of metallurgical coal. If export of coal in India's interest is to be encouraged by grading, the present grading should be put on a scientific basis to enable the export of non-metallurgical coal after washing. This will also permit extraction of coal in Coordinated sequence and do away with sectional grading.

Questions 4, 5 & 6:— No comments.

Question 7:—Please see reply to question 3 above.

Question 8:—It is very important for industries to get good quality coal of suitable specification. This cannot materialise unless coal is graded on scientific lines and is sold on specification. To achieve this end, compulsory grading is essential. High ash coal i.e. with ash more than 15%, in many cases generally speaking, can be brought within the margin of 15% ash by modern heavy liquid separation or washing plants. Thus different grades of coal with definite percentage of ash can be obtained from such plants and can be classified according to the requirements of various industries. If grading of coal for the internal market is to be made effective, such washing of inferior grade coal as described above should be either made compulsory under financial guarantee by Government or central washing plants should be put up at convenient centres by Government and coal from neighbouring collieries washed at a rate of hire or both. The Railways also will have to supply the necessary type of wagon to make the operation of such washing plants economical and efficient and further to maintain a regular supply of wagons all through the year, whether it be the season for the haulage of agricultural produce or not, in order that such expensive washing plants may not be kept idle for lack of adequate wagon supply.

Thus grading or determination of correct specification is as much necessary for the inland consumer as it is for the foreign consumer. With knowledge of specification the consumer will be able to secure his requirements more confidently and this will minimise the risk of uncertainty of quality, supply and dispute because, if coal is marketed on the basis of authoritative specification, the chances for dispute, corruption, etc., will be greatly removed. It will also assist in the maintenance of proper statistics and be helpful in research and scientific application or

adaptation. Thus it is in public interest that it should be made compulsory that coal should be offered with the correct specification.

Question 9:—No comments.

III—PORT FACILITIES.

Questions 10, 11 & 12:—No comments.

IV—RAILWAY FACILITIES

Question 13:—Our recommendations are:—

- (a) At present during certain seasons of the year, the supply of wagons to collieries is considerably diminished as Railways have to carry agricultural produce. This practice should stop. Railways should adapt themselves to serve the needs of collieries and not require collieries to adapt their production to suit the exigency of Railways when wagons are required elsewhere for agricultural produce. There should be provision of sufficient wagons for the coal traffic all the year round.
- (b) In order to get steady production further mechanisation of the mines would be necessary. But mine owners would be chary to invest money in costly handling plants etc. if such expensive machinery is to lie idle for lack of sufficiency of suitable wagons. Thus without ensuring sufficiency of wagon supply, mechanisation of mines to improve production would be discouraged.
- (c) Certain processes such as washing of coal to reduce its ash percentage would require special trucks which facility should be provided by the Railways in the larger interest of coal conservation.
- (d) As immediate increase in coal production is required in the interest of the country as a whole, the Railway Board should set aside for the next 10 years, a sufficient sum for the construction of colliery sidings at their own expense, wherever the Chief Mining Inspector certifies such new sidings to be necessary.
- (e) Adequate siding accommodation should be implemented with sufficient engine power in the interest of larger production.
- (f) The question of maintaining sufficient labour for steady production all the year round is dealt with elsewhere.

Question 14:—Please see answer to question 13.

Question 15:—In the present conditions of short supply of coal and scarcity of wagons, the removal of the existing controls for distribution would lead to great confusion and would be direct encouragement to blackmarket practices. Our opinion is therefore that the present control of distribution should continue till Railways can ensure a sufficiency of wagons to carry the coal traffic all the year round and adequate production of coal is forthcoming, the order of priority being based on the importance of the industry concerned to the country as a whole.

Question 16:—The advantages of a weigh-bridge installed at a colliery are—

- (a) It relieves congestion at the central weigh bridges and thus eases the turn round of wagons.
- (b) It reduces the detentions of wagons *en route* as the necessary adjustments have already been made at the colliery weigh-bridge.
- (c) If the wagons are weighed at the central weigh-bridges under the existing arrangement, there is a certain wastage of coal and traffic detention.

We are therefore of opinion that it is in the public interest to encourage collieries to have their own weigh-bridges by the continuation of the old rebate system and the installation of weigh-bridges at all collieries or groups of collieries producing 10,000 tons per month would be in public interest.

The Government should also encourage the building of such weigh-bridges by Engineering houses in India with a view to reducing its cost.

Question 17:—The main complaint is about loss *en route*. Our suggestions to meet this difficulty are :—

- (a) The Railways should bear the loss *en route* by charging a slight premium for such insurance which should be worked out on actuarial principles. When the Railways bear the responsibility for the loss, they will naturally make provision to minimize pilferage etc. *en route*.
- (b) For long distance traffic, suitable covered wagons should be designed by Railways.

Question 18:—We are interested in larger production of coal and we appreciate the need for adequate sidings to promote production. We therefore urge that the present abnormal delay between application for siding and its construction should be minimised. Under question 13, we have already recommended as a measure to increase production for a period of ten years. Government should construct the necessary colliery sidings at their own expense, on the certificate of the Chief Mining Inspector that they are necessary.

Question 19:—The remedies in our opinion are—

- (a) Encouragement to installation of weigh-bridges at collieries or groups of collieries producing— 10,000 tons per month or more by the continuation of the rebate system previously in vogue.
- (b) Designing and introduction of standard wagons for coal traffic.
- (c) Arrangements to check wagon tare weights more frequently.
- (d) Examination of the specific gravity of the various classes of coal despatched.

Question 20:—No comments.

Question 21 :—The whole question of coal freight policy will be dealt with by us in reply to Questionnaire II under the heading Transport.

Question 22:—In reply to question 13, we have already dealt with the undesirable policy of Railways denying sufficient wagons during certain seasons on ground that their wagons are pre-occupied with the transport of agricultural produce. Such seasonal shortage of wagons for collieries, to suit the convenience of rail transport of agricultural produce, is against the interests of the country as it impedes the efficient and economic operation of expensive handling machinery for facilitating increased production and washing machinery to improve the quality of high ash coal by reducing the ash by heavy liquid separation process. Apart from this, the coal industry which has a place of its own in the national economy should not be considered to exist to suit the seasonal conveniences of Railways. Steady production and transport of coal, all the year round, without seasonal ups and downs, is imperative in the country's interest. Railways should therefore arrange to provide sufficient wagons for the coal traffic all the year round. In the circumstances taking a long term point of view, it is not in the country's interest to encourage seasonal rates for the transport of coal.

V.—RAISING COSTS

Questions 23, 24 and 25:—No comments.

VI.—RAILWAY COAL REQUIREMENTS

Questions 26, 27, 28, 29, and 30:—No comments.

VII.—STOWING

Question 31:—From the point of view of conservation of available supplies of different kind of coal, we are vitally concerned with the operation and progress of stowing and we would refer you to our answers to the two questions under the heading I—General.

Question 32:—No comments.

VIII.—MISCELLANEOUS

Question 33:—Land acquisition process is becoming more and more difficult for the following reasons :—

- (a) Values have greatly enhanced from the scheduled rates laid down some years ago.
- (b) The delays in dealing with the applications are impeding the progress of colliery development.
- (c) In the same province assessment is made at different rates. Our suggestion to meet these difficulties is that Government should own both the right to coal underground as well as the surface right over land in order to remove existing hindrances to development of collieries on sound lines.

Question 34:—The previous experiments in briquetting may not have been found economical because of the very low price of coal at pits mouth but that is no reason why the Fuel Research Institute and the Indian School of Mines, Dhanbad should not carry out now further experiments in briquetting since the price of coal has reached very high levels and is expected to stay there.

Question 35: We shall deal here with the last two questions. So far as the iron and steel industry is concerned, the prospect of reducing the ash of Jharria coking coals averaging in ash more than 15% and thus bringing down the ash of such coals within the limit of 15% is very welcome to the iron and steel industry because it means so much additional coal made available for metallurgical purposes.

From the point of view of other consumers, the washing process makes coal available with a definite ash percentage. Thus the washing process makes possible to give a definite specification to washed coal, showing the degree of ash content and the significance of washing process to the various industries is that scientific marketing of coal becomes possible, since the industry concerned knows where to buy the kind of coal required by it containing a certain definite percentage of ash. Without coal washing, marketing of high ash coal in India on scientific basis would not be possible. With washing such high ash coal can be reduced in ash content to any desired extent within certain limits and sold for the specification required. The other important aspect of coal washing consists in the fact that it opens out a new field for export of coals without our having to deplete our resources of either metallurgical coking coal or high grade steam and gas coal. With the washing process implemented with research in this line, a quality of coal with ash below 15% can be put in the market for export purposes in competition with South African coal etc.

Question 36:—No comments.

Question 37:—No comments.

Question 38:—No comments.

Question 39:—As coal consumers we are interested both in the efficiency of labour and their contentment. We, therefore, strongly urge that primary education should be made free and compulsory by the State in the coalfields area. The education problem for colliery labour goes to the very root of the general aspiration to raise their standard of living. At present a colliery miner, as he gets increased wages, tends to work for 3 days a week instead of 6 and invests, so to say, the extra money to secure more leisure. In order to infuse in the colliery labour any ambition to improve their standard of living by their desiring to have more necessities and conveniences, it is fundamental that they should be able to read and write and discuss matters among themselves intelligently. From this point of view, free and compulsory primary education is not recommended as merely a measure of social reform but as a necessity for having in future an efficient body of miners for the coalfields.

Question 40:—As stated in our reply to question 39 above, primary education is the basis of all welfare work among the colliery labour to improve their standard of living. The institution of the Welfare Cess should be utilised for provision, of housing accommodation, recreational facilities for listening to the radio news and songs in their own dialect or in Hindustani for instructive and amusing cinema pictures so that such of the miners as are attracted towards drink and gambling can be weaned from these habits.

Further, communities from other provinces should be induced to adopt mining as their profession. This has been done to a certain extent with Gorakhpur labour and similar experiments should be encouraged, especially since it is apprehended that the present community of miners, diseased and unhealthy as they are, tends gradually to die out. From this point of view their vital statistics should be considered by authorities in the coalfields to ascertain whether the apprehension that the present race of miners in the coalfields is tending to die out under the stress of existing conditions is correct.

QUESTIONNAIRE II

There will be great confusion and inefficiency to the detriment of the coal industry if the distribution of powers between the Central and the Provinces reverts to the position as existed before the Centre assumed emergency powers to regulate production and distribution of coal during the last war.

In our opinion immediate steps should be taken to enact the necessary legislation to vest in the Centre the power to regulate mines and mineral development and to control the production and distribution. Our reasons for making this recommendation are :—

- (a) Provinces are apt to look at the coalfields in their area as mere sources of indirect revenue to them and employment to their people but the coal industry is much more than that. It is a basic national industry. Coal as an important source of power to the whole of India and the basic raw material for metallurgical and chemical industry is of paramount national interest to the country as a whole.
- (b) The imperative requirement of the coal industry is its rationalisation, both of production and distribution ; but this cannot be achieved if each Province has its own ideas in the matter.
- (c) In the interest of efficient operation of coalfields in a certain Province, it may be necessary to import labour from outside the Province. This would be easier to accomplish if the Centre had the final say in the matter rather than the Province concerned whose short-term interest would tend to ban outside labour in order to give as much employment to its own people as possible.
- (d) As there are important coal fields in the Indian States and as it is necessary that their policy in coal matters should co-ordinate with that of British India, it would be easier for the States to fall in line with the policy of British India if the controlling voice is with the Central Government rather than with the Provinces.
- (e) From the point of research for better production and marketing of coal, it is essential that it is directed from one Central Authority, rather than that each Province should carry on its own research in an uncoordinated manner.

Question 2:—We have observed that during the war time, various departments of the Government of India had to be referred to and consulted by the coal authority before any decision could be reached. Thus the Labour Department, the Commerce Department, the Transport Department, and the Planning Department, have had their say in coal matters. This resulted not only in inordinate delay in reaching decisions but the decisions reached at times tended to be disjointed compromises, rather than correct solutions. We are, therefore, of opinion that it would be in the interest of the industry to have its administration centred in one department under a Member of the Viceroy's Executive Council who may also deal with other mines and minerals (including oil) and also hydro-electric power. Under this Member, there should be an All-India Coal Board representing the interests of labour, Provincial Governments, producers of coal and consumers of coal, presided over by a Chairman appointed by the Government and under this Coal Board, there should be various Committees dealing with welfare, production, distribution, marketing, research etc. on scientific lines. The Coal Secretariat should be staffed with experts on various aspects of the coal industry.

II.—ECONOMICS OF THE COAL INDUSTRY

Structural Organisation of the Industry.

Question 3:—(a) *Managing Agents:*—In the past, working of important coal companies under the Managing Agency system may have given cause for misgiving on the following grounds:—

1. As important Managing Agency Houses had practically monopolised most of the good quality coal as well as the custom for it, it made business very difficult for Indian producers who had to fall back on second class coal property without any assured market; to them coal industry became a gamble with the result that they produced coal most recklessly, while the going was good, without any regard for scientific production or conservation, to the ultimate loss of millions of tons of coal.
2. Some of the Managing Agents though better placed to appreciate the advantage of scientific mining and the value of coal as a national asset, did work their mines in the past as destructively as the small colliery owners, driven by the urge to make more dividends especially when they happened to lend large sums of money to their lessors on the mortgage of their royalty rights.
3. We understand that among some firms of Managing Agents there is a tendency to favour the establishment of a separate organisation in which the Managing Agents are directly or indirectly interested, for the sale of coal produced by the collieries under their Agency. Such a development may lend itself to easy abuse to the detriment of both the shareholders and

consumers concerned and the present Committee may consider if there is anything in it.

But these (apart from 3 above) are episodes from the past history of the Managing Agency system. Things are different now.

The obvious advantages to the industry of a number of coal companies being worked under a firm of Managing Agents are given below:—

- (i) With the backing of well established Managing Agents the coal companies under them can easily obtain at present financial assistance from banks etc. to enable them to operate their mines efficiently.
- (ii) Technical assistance at a higher level is easily made available to such a group of collieries working under a firm of Managing Agents, since high salaried technical experts could be engaged for the mines under the group, their salaries being divided among these mines according to the tonnage produced. Such technical assistance tends to encourage modern scientific method of operation to be adopted by individual mines under the group.
- (iii) When one of the mines in such a group under Managing Agents does not pull its weight, the Managing Agency system enables it to be nursed and carried over to a period of convalescence by the Managing Agents forgoing their minimum commission etc. and making nominal charges for the other services rendered.
- (iv) The economies of large scale purchase of stores etc. become available to the individual collieries of the groups under Managing Agents.
- (v) The grouping of a number of collieries under Managing Agents tends towards uniform practice as regards wages, labour conditions etc. Again the convenience of dividing the expenditure on welfare, medical aid, schools etc. over a number of collieries under one group tends to provide better amenities to labour than they would have otherwise secured.
- (vi) When a large number of collieries are grouped together under a few Managing Agents, it becomes easier for the latter to get together and give a powerful lead for purposes of organising the industry. We believe it was some such impetus from the Managing Agents Houses that led to the first step towards organising the distributive side of the coal industry in the formation of what is known as the Calcutta Selected Coal Association for the marketing of high grade coal. Such a voluntary organisation, wisely directed to keep before its constituents not only the profit point of view but also the larger interest of the industry and country which depend on rationalised production and distribution of coal, could be a very useful adjunct to the Government in their policy of rationalising the marketing of coal.

(vii) The facility of spreading any expenditure for research over a number of mines under a firm of Managing Agents tends to encourage them to go in for practical research. Thus, the Managing Agency firm of Messrs Anderson Wright & Co., among other pioneers, have contributed by their work to remove the old prejudice that modern coal washing is not suitable for Indian conditions and have ordered a coal washing equipment from abroad for one of the companies under their Agency to demonstrate the process on a working scale.

(b) *Privately owned Collieries belonging to owners who are not consumers.*

Their difficulties in normal times are subject to important exceptions:—

- (1) They are too many to agree to any scheme to bring them together for organised production or distribution. While it is easy for a few firms of Managing Agents to come to an agreement among themselves on matters of policy to bind the collieries under their Agencies, any such agreement is not practicable among these privately owned collieries. The result, in normal times, is severe competition, ruinous operation and more loss than profit on the average over a number of years.
- (2) Their condition being what it is, it is not generally possible to get any financial help to equip these collieries with necessary machinery except at prohibitive rates of interest.
- (3) Speaking generally, they also cannot, in the circumstances described above, engage and pay for the services of necessary technical personnel to work their mines on scientific lines.
- (4) Without financial facilities and technical help, they generally tend to work their properties from the immediate point of view to win more coal somehow, regardless of the fact that their doing so will destroy ultimately large reserves of coal in their own and neighbouring mines.
- (5) Shut out from better class customers who are generally catered for by collieries under established firms of Managing Agents for the sale of their coal which is generally of inferior quality, they have to rely upon middlemen who are apt to take advantage of their weakness.

We are of course not speaking of the abnormal war time conditions when their prosperity was assured.

(c) *Privately owned Collieries belonging to Consumer interests such as Railways, Iron & Steel Companies, Cement Works etc.*

A characteristic of transport companies like Railways and Iron & Steel Works is that they have to operate—continuously without stoppage—Railways for the sake of public convenience and Blast Furnaces, Coke Ovens etc. in Iron & Steel Works for the technical reason that if

they stop and get cold, their expensive brick lining get out of shape and have to be relined at a very heavy cost. Therefore, in order to minimise the risk of stoppage for lack of coal, they have to own and operate their own collieries to supply a part at least of their coal requirements. Such a vertical combination of coal mines with Railways or Iron & Steel Works under one ownership plays an essential part in their economy and the public cannot have any grievance against Railways and Iron & Steel Works owning an essential raw material for their operation, any more than they can have against a Weaving Mill having its own spinning department.

In these cases it is an advantage to the country as a whole that such large blocks of coal property should be in the hands of Railways, Iron & Steel Companies, Cement Works etc. The advantage to the country consists in the following aspects of the operation of these properties from the point of view of conservation etc. on scientific lines.

- (1) As finance is easily obtained, such properties tend to be equipped on modern lines with the necessary machinery for the production and handling etc. of the coal produced. Thus it is considered that some of the collieries belonging to the Tata Iron & Steel Company are among the best equipped collieries in India, both for the winning of coal and its handling.
- (2) Similarly, as regards the costly operation of stowing in the interest of conservation of coal, there does not seem to be any difficulty in such collieries to comply with the technical requirements of stowing.
- (3) As regards research, such colliery owners are best placed to carry out experiments in the line of fuel research. Thus, for instance, considerable work has been done by the Tata Iron & Steel Company over a long period, on the following lines:—
 - (a) Blending of good quality coking coal with inferior quality to produce a suitable mixture for coking purposes.
 - (b) Washing of coal in a pilot plant to reduce the ash from high ash Indian coking coals with a view to bringing the ash down to 15% and below and, on the strength of such experiments, a modern washing plant has been ordered for one of Tatas' collieries.
 - (c) Tatas have further aided research by lending to the Government their expert under whose guidance considerable research work has also been done by the Fuel Research Committee appointed by the Board of Scientific and Industrial Research.
- (4) Labour conditions in collieries belonging to such industrial interests are generally maintained in a better state than elsewhere in order to give incentive to their labour to give steady production.
- (5) For industries owning such collieries, the availability of coal from their own collieries has a steadying effect on the production of the industries concerned as

otherwise, during war times some of the sections of these industries would have had to shut down for lack of suitable coal.

- (6) If the Government of India lays down any policy for rationalisation of production etc., the fact that Railways, Steel Companies etc. privately own such large blocks of coal property will be a help to Government in ushering their rationalisation policy for the industry as a whole.

In the past, there was some dissatisfaction amongst the public that coal produced from the collieries belonging to the Steel Companies etc. competed with the coal produced by private companies and individuals. This is now a matter of the past and we hope that such competition will not recur, as the coal belonging to these consumer companies will be required more and more for their own use.

There is also some criticism that in the past when coking coal properties were going very cheap, the Steel Companies did not further purchase such properties in order to make themselves independent of outside purchase of coking coal, instead of their being able to draw only a part of their supplies from their own mines, because, it is argued, had they done so, there would have been no necessity of conserving metallurgical coal for them. This is a mistaken idea, because coking coal has to be preserved not only for the existing steel companies and their extensions in future but also for new steel works. Had the existing steel companies purchased additional coking coal properties sufficient to supply all their requirements they would have acted, in our opinion, against public interest because they would have thereby practically monopolised coking coal reserves and made it very difficult for a new steel works to be started.

*Question 4 :—*We have shown in our reply to question 3 above that the good points of the system of Managing Agents exceed its occasional weak points.

It is possible that the Managing Agency system under certain circumstances may lend itself to abuse in the following respects :—

- (i) There is a contingency of some Managing Agents trying to make money for themselves out of the financial difficulties of a colliery under them by borrowing from Banks at a low rate to lend to the distressed colliery at a very high rate which may aggravate the difficulties of the colliery, concerned to the point of liquidation. This possibility can be eliminated if it can be arranged that collieries otherwise sound can borrow from a Central Fund belonging to Government at a cheap rate on the lines of cheap loans to agricultural classes.
- (ii) In the absence of control there is a possibility of some Managing Agents trying to profit themselves by buying up the coal from the collieries under them at a cheap rate, through an organisation in which they are directly or indirectly interested and thus have a share in the

marketing of such coal. This difficulty can be removed, when the Central Marketing Scheme under Government control is evolved.

*Question 5:—*This has been partly answered by our reply to Question 3. When industrial consumers have their own collieries, they have to take long views and they are naturally interested to make their coal last as long as possible and they therefore, would not grudge any expense to adopt the necessary measures for conservation such as stowing etc. and in serving the ends of conservation they would serve the cause of safety as well.

From the general consumers' point of view, the removal from the competitive field of such a large block of demand for coal from Railways and industries having their own collieries has a healthy sobering effect on the general prices of coal.

As regards labour conditions in collieries belonging to industries, when such industries flourish, their colliery labour also benefits by such prosperity and its wages and amenities are generally better than they would have been otherwise.

*Question 6:—*The following advantages result from Indian Railways drawing a part of their supply of coal from their own collieries :—

- (i) Relatively more regular and efficient Railway service.
- (ii) Ultimate advantage to the country in saving of wastage etc. by large blocks of coal property being worked by Railways on a large scale on modern lines.
- (iii) The demand of such large quantities of coal as are mined by Railways being taken away from the competitive market tends to sober down prices to a healthy level.
- (iv) The conditions and amenities of Railway colliery labour are generally better, as they do not have to depend on the ups and downs of the coal industry.
- (v) The intimate mining experience acquired by Government departments in operating the Railway collieries would be a great asset to Government introducing rationalisation of production.
- (vi) The fact that such large blocks of collieries owned by Railways and industries are worked on modern scientific lines will considerably ease the problem of rationalisation of production when the Government is ready for it.

OWNERSHIP AND MANAGEMENT

*Question 7:—*In our opinion the Government should acquire the mineral rights and take power to revise the defective provisions in existing leases. The chief disadvantages of the private ownership of rights, in our opinion, from the point of view of efficient production, are :—

- (1) There is no standard lease of coal as in the case of other minerals in some Provinces and States.

- (2) When most of the existing leases were drawn up in the early years of the coal industry, neither the lessors nor the lessees had enough knowledge of the character of Indian coals and their values and of the practice of modern scientific mining and the leases had to be drawn up on general lines, omitting much that was valuable from the point of view of modern mining practice and retaining much that was vague.
- (3) Efficient scientific production of coal requires in such leases provisions for (a) instroke and outstroke working (b) working of seams in co-ordinated sequence (c) the adjustment of boundaries on geological lines, and (d) improvement of low grade coal by modern heavy liquid separation methods. Omission of such provisions in these leases has led to wasteful and destructive mining of Indian coals to the irreparable loss of millions of tons of coal to the country. Many of these leases are so vaguely worded that they are capable of double interpretation, out of which much litigation has arisen in the past. The simple remedy for these difficulties is the framing of a standard lease embodying the above essential provisions of modern mining practice.
- (4) The practice of *salami* is another bad influence tending to destructive mining by the ignorant small producer who, having paid, a large *salami* to the lessor probably by borrowing at a high rate of interest, tries to recover it by working his mine recklessly with a view to winning as much coal as possible.
- (5) Another evil practice which has also led to reckless mining is the lending of monies to the lessors by the lessees on the mortgage of the royalty rights. In their zeal to recover the loan, as soon as possible some lessees worked their mines destructively cutting wider galleries and leaving thinner pillars which led to destruction of valuable reserves.

Hence the necessity of the State becoming the lessor by taking over the mineral rights in order to regulate mining on scientific lines.

Question 8.

We do not see how mere administration by the State of coal-bearing properties on behalf of the owners can mend matters much, as most of the defects enumerated in reply to question 7 will remain unremedied.

This may mend matters to a certain extent as regards new leases but will not touch old leases which constitute the chief difficulty at present: therefore, the proposal would be inadequate to rectify the defects mentioned in reply to question 7.

India is taking its first steps in public administration of industries and utility service apart from Railways and further progress will have to be made towards reaching a satisfactory level of administrative efficiency and attaining a higher sense of responsibility towards the public before India would be ready for the efficient operation of its basic industries etc. through nationalisation as in Western countries. The fact that nationalisation of coal has been put through in Russia, the U. K., Belgium and France does not by itself support the proposition that coal should be nationalised in India also at this stage of her development, especially when Indian conditions are so different from those of Europe. As nationalisation of coal has taken place only very recently in Belgium, France and the U.K., we cannot judge of its efficiency. As regards Russia, where it has been introduced for some years now, Soviet propaganda would not permit us to know how far State working of Soviet collieries has fulfilled the expectation of efficiency as regards their production. The Government should, therefore proceed on cautious lines and try to achieve the substance of nationalisation—namely, rationalise production, distribution and marketing under control, without its shell. Already the Government has large experience of controlling the coal industry during the war and the fact that extensive coal properties are already concentrated in a few large units like Steel Works, Managing Agents of important groups of collieries and State Railways would considerably help the Government to carry out rationalisation of the industry through control without the State having to own, operate and dispose of coal.

As regards small collieries, it is difficult to rationalise their production of coal and its distribution and marketing through control. In order to make control effective for this purpose, amalgamation of such collieries in convenient groups is essential. The Government should assume legislative powers to amalgamate such collieries but should not use their powers, as we believe persuasion by the Government with such legislative authority behind it would serve to bring about voluntary amalgamations. Such amalgamations should be operated through a Holding Company in which the Government should also have a financial interest, in consideration for which a Government nominee would have a seat on the Board. The operation of these amalgamated collieries could be entrusted to private agencies subject to Government control. Such a Holding Company should also take over large collieries which are nearly exhausted and where stowing operations would not be economical at the present day prices of coal but which would pay at a later period with higher coal prices.

We are, therefore, of opinion that the State should acquire mineral rights of coal and in the present condition of India the ownership and operation of coal should be left to private agencies, subject to the State having effective control over production, distribution and marketing.

FINANCE

Questions 11 and 12.—No comments.

PRODUCTION

Questions 13, 14, 15 and 16.—No comments.

DISTRIBUTION AND MARKETING.

The objective should be Central marketing but this is not immediately possible. It is a long-term proposition. The first thing to do is to urge the Government to expedite research both on metallurgical and non-metallurgical coals, so that it can be definitely specified for which industries which coal should be used. The Board of Scientific and Industrial Research has planned for such research on a small scale. We have to ask Government to produce more finance for this purpose so that the Board of Research can reduce the long time that elapses in Government institutions between planning and performance.

Further, it should be realised that owing to conflicting interests of large and small producers, of producers and consumers, of producers and middlemen, Central marketing on a voluntary basis would not be a durable organisation. The second thing to do for the Government is, therefore, to assume new legislative powers to control distribution and marketing of coal. Though the Government may not enforce their authority in this matter, the fact that such authority exists will help the Government to influence the formation and operation of any organisation for central or regional marketing that may be set up on a voluntary basis in the meanwhile. The experience gained by the Government with such an organisation will be useful, when the Central Marketing Agency under Government Control, armed with the results of fuel research now being set in motion, knowing where is wanted what coal, begins to function with confidence on a scientific basis. In the evolution of the Central Marketing Scheme towards this end, use should be made by the Government of such existing Associations like the Calcutta Selected Coal Association as are amenable to higher influences and considerations in the larger interests of the country beyond the mere point of view of profit. The proposed Holding Company for the amalgamated small collieries will also be of help to the Government in smoothing their way to the Central Marketing Scheme. The fact that metallurgical coal is already regulated during the present war time control and Railways are gradually adapting their locomotives to use inferior coal and are using more and more of such coal and many industries which in pre-war time were using high grade coal are getting used to the substitution of lower grade coal, eases the approach of the Government to this problem of the Central Marketing Agency. Thus, gradually the rational object of complete regulation of the use of different coals for different lines under the Central Marketing Scheme will be achieved. In the meanwhile, the present control over distribution and prices should continue as a pathfinder towards our objective,

Question 18.

Please see reply to question 17.

Question 19.—The responsibility should be of Technical Staff advising the Central Marketing Agency.

Question 21.

This question should be scientifically surveyed and examined by the technical experts in the fuel engineering line of the Fuel Research Department. There is no reliable body of knowledge on this subject at present.

TRANSPORT

Question 22.—To avoid any misunderstanding, it should be stated we are not here dealing with the special kinds of coal which will have to be railed to any part of India as and when required but with ordinary coal for power purposes, the production and distribution of which can be usefully brought within the economics of zonal system. The geology and geography of coal deposits in this country indicate that the zonal system of production and distribution of coal under control will provide a solution to some of the difficulties of the coal industry. One such difficulty is the heavy freight on coal for long distance traffic for instance, from Jharia to Kalyan near Bombay. The zonal system would require that this coal should not be railed from Jharia but from the Central India zone of coal-fields and would thus cut down freight on some 500 miles. The effective functioning of such zonal system would require a survey to be made by experts of the economic range of supply from each zone. This zonal system, in a rough and ready way, is already at work under war time control but its potential economies would be best brought out when (a) the above survey of the economic range of each zone has been made, (b) research on Indian coal is completed which will enable scientific marketing of Indian coals, clearly indicating which coals should be used for which industries, and (c) coal washing processes for the purpose of reducing the ash in our inferior coals transform our so-called third class coalfields into sources of first class coal.

When the above information is available, the details of zonal system can be planned.

Question 23.

To avoid any misunderstanding, the above suggestion should be understood in its correct context. This proposal of pooling of rail freights applies to ordinary coal for fuel purposes and not to special kind of coal required for metallurgical and chemical industries. Secondly, this pooling is to apply not to the whole sub-continent of India but to various centres in a particular zonal area. Thus the pooling proposed does not mean that the freight from Dhanbad to Calcutta and Karachi for ordinary fuel coal should be the same; taking the particular zonal area of the Central India coalfields, it would mean that the freights within economic range of this zone on ordinary coal for fuel purposes should be so pooled that the freight for instance on coal supplied from this zone to Kalyan, Bombay, Ahmedabad, Navsari, Baroda etc. are the same. Such pooling of freight within a zone will tend to the decentralisation of industries and to rapid development of primary and secondary industries at new places. Such dispersal of industries is

both in the interest of the country and is also desirable from the strategic point of view.

Question 24 :—

We agree that freights should not be the same for different qualities of coal.

There should be two sets of freights, one for coal used in its raw state as fuel for steam raising in boilers that is, in short, for power purposes and another for coal which before it is used in an industry has to be processed to make it a suitable raw material for an industry. To give an example of the latter class of coal, we may take the coal required for metallurgical purposes and for chemical industry. Metallurgical coal as such cannot be used in blast furnaces to produce iron. Before it can be so used, it has to be processed in modern coke ovens, where it is split up into tar and various gases and the residue called coke is only used in the blast furnace not as a fuel but as a necessary raw material along with other raw materials like iron ore and limestone to produce iron by its reducing action on iron ore. Thus, where coal is used in boilers as mere fuel for producing heat and when it is used for metallurgical purposes after being processed as a raw material or in chemical industries as raw material, the two uses are quite different. Our suggestion is that the freight on metallurgical coal used after processing as a raw material for the iron industry and coal used as a raw material for chemical industries should bear a lower rate of freight than coal merely used as fuel for power production.

Our chemical industries are tending to be located on the Western coast of India and in the Punjab near salt works but far away from the coal fields of India and any rational reduction in freights on coal used as raw material in the chemical industry which is in its infancy will help its economy.

As regards iron and steel industry, it is in the interest of the country that it should not all be centralised near the Jharia coalfield. The only other suitable location for the industry is in the Central India where there is very good iron ore but no metallurgical coking coal and, therefore, coking coal will have to be railed from Jharia to the Central India if a steel works is to be located in Central India in the interest of dispersal of this industry and our suggestion of a lower freight on metallurgical coal for reasons explained above will help in the rational planning of this industry.

Also in the case of fuel coal with high ash it should bear, other things being equal, a lower freight rate than low ash coal in order to induce consumers to adapt their power plants to the use of high ash coal and thus conserve the limited reserves of low ash coal.

But there are administrative difficulties in carrying out this suggestion. For instance, how are Railways to know that a particular consignment is of high or low ash? We think, therefore, that such regulation of freight rate cannot be scientifically carried out till as the result of research and coal washing on an extensive scale, it becomes possible for the Central Marketing Agen-

cy under Government control to sell coal according to specification and a consumer knows definitely which specification of coal is good for his industry. Also, if coal washing plants come into general use in the near future the present need for encouraging high ash coal by specially low freight will be considerably diminished. Therefore the Government should consider whether in the meanwhile they can devise a rough and ready method of separating high ash coal as such, for instance, by restricting its despatch from particular stations in the high ash coal area etc. with a view to giving such coal a special low freight in the interest of conservation of low-ash coal.

*Question 25 :—*No comments.

Question 26 :—

Large industrial consumers of coal move their coal in trainloads instead of in single wagonloads. Thereby the distance between the colliery station and the destination is traversed in very much shorter time than in the case of single wagon loads as such a train has not to stop at intermediate stations *en route* to pick up or to detach wagons. Such trainload traffic, therefore, effects considerable direct economies by the quick turn-round of wagons and locos, not to speak of the easing of congestion by the avoidance of marshalling etc. Our suggestion is, therefore, that both in the interest of Railways and industrial consumers, such economies or a part of them should be passed on to the consumer by reduced freight rates being charged for train-loads than for wagonloads.

Modern mechanical equipment for loading at coaleries and the corresponding equipment for unloading at destinations require large capital investment and if the Railways encourage such modern practice of loading and unloading by quoting a special low rate for trainload traffic, it would contribute towards rationalisation of coal traffic.

Such a special freight rate would also induce industrial consumers located at a great distance from coalfields to take their requirements in a lot in a trainload to minimize the great loss of wastage and pilferage *en route*.

*Question 27 :—*No comments.

Question 28 :—

Yes, there should be pooling of all coal wagons. Further, the efficiency of the exchange stations should be improved as inordinate delay takes place there.

PRICE AND PROFITS

Question 29 :—

A return to competitive methods would be fatal to the whole planning for rationalising the production and distribution of coal and for marketing coal on a scientific basis. Besides, at present the scarcity of production and necessary transport would put consumers at a great disadvantage and black-market would flourish, whatever may be the reasonable prices on paper fixed by the trade voluntarily. The government control over distribution and prices should, therefore, continue with the priority system both for supply and transport based on the importance of the consuming industry to the country as a whole.

Question 30 :—

We do not agree with this view. We urge that prices should be fixed for all coals, otherwise, if, as proposed, half the production of coal in India is removed, from the sphere of competition, the rigours and abuses of competition will be intensified on the other half and consuming interests apart from Railways and Steel Works would suffer heavily.

Under the Member-in-charge of Fuel etc. in the Viceroy's Executive Council, there should be a price fixing Committee or Board consisting of representatives of the Government, producers and consumers with a Chairman appointed by Government.

Question. 32:—This should be worked out on a scientific basis taking selected grade as the standard and proportionately lower prices for coals with higher ash, it being borne in mind that there is reason to reduce the prices of high ash coals further after they are worked out on the above basis because of the fact that railway freight at present is the same for selected grade coal or high ash coal and the consumer of high ash coal pays so much freight for the extra ash percentage over the standard.

The cost of production of inferior grade coal is very much lower than of high grade coal because the mining operations are simple and the equipment required for such mining does not cost much. This should also be taken into consideration in fixing the difference between high grade and low grade coals.

The present difference between high grade and low grade coal prices as fixed by the Control is too narrow with the result that inferior grade coal producers with their low costs are said to make a margin of profits of Rs. 5 to Rs. 7 per ton, where as the producers of high grade coal owing to their heavy investment in expensive machinery and the complicated nature of their mining operations, are said to make a profit of Re 1 to Rs. 2 per ton. This leads to low grade producers diverting the labour from high grade mines by offering them better direct and indirect emoluments with the result that production of high grade coal suffers. This may be examined and rectified as far as possible.

Question 33 :—

Naturally, in the absence of price being regulated by the demand and supply factors, the basis of price-fixation would be what it would cost to produce a ton of coal in normal conditions, sufficient allowance being made for keeping the labour contented and healthy and maintaining the plant in mechanical efficiency both from the point of view of maintenance and conservation plus a certain percentage of profit.

As conditions in Indian mines vary so much from mine to mine and the cost of winning low grade coal is ever so much cheaper than the cost of winning high grade coal, as shown in our reply to question 32, it is not possible to work out any basis with scientific accuracy. Therefore, an *ad hoc* basis will have to be adopted separately, one for inferior grade coal and the other for high grade coal on a rough estimate.

As regards what element of profit should be included in the price, due allowance should be made for the fact of coal mines being a wasting asset and for fact that the whole tonnage contained in a mine can not be ultimately won but only a percentage of it.

Question 34 :—

Ultimately when the coal industry is rationalised and the Central Marketing Agency under Government control functions, the middlemen's commission would be automatically eliminated. During the war, the commission which in peace times was upto a maximum of 4 annas per ton, was considerably increased by the Coal Control Department. The Indian Mining Association and the Coal Consumers' Association of India made representations to Government in this regard which met with some success. We think the Government should use its influence to restrict the commission to those middlemen who assume *del credere* risk and the scale should be based on pre-war practice.

Question 35 :—

TAXATION

The present cesses are :—

	Rs. a. ps.		
(1) Jharia Mines Board of Health (on raising)	0	0	5.76 per ton
(2) Jharia Water Board (on despatch)	0	0	9 ..
(3) Central Rescue	0	0	2.5 ..
(4) Sack Stowing	0	2	0 ..
(5) Road Cess	0	0	2 ..
(6) Coal Production Fund Cess	1	4	0 ..
(7) Coal Mines Welfare Cess	0	4	0 ..
	1	11	7.26

In addition, there is a further road cess of one anna in the rupee assessed on profits, also a choukidary tax of Rs. 110-per year on the basis of 75 units of housing accommodation. There is also a soft coke cess of two annas per ton on despatches.

The existing taxation of the industry through various cesses for providing public services and necessary amenities to labour and for stowing in the interest of the coal industry as a whole are justified in our opinion.

Most of these cesses are on despatches except Jharia Mines Board of Health cess which is on the basis of raisings. The latter cess also should be on despatches. The choukidary tax should also be on the basis of despatches because the manner in which it is at present levied discourage building of houses for labour. Further all these various cesses should be consolidated into one and administered by one Central authority under which the various Boards of Health, Water board etc. should function.

National and International Commercial Policies

Question 36.

As stated in our replies to Questionnaire I, we are against export of Indian coal, either coking or steam, from the point of view of conservation of reserves of such coal for the use of future generations, but with this proviso that when in the near future coal washing processes reduce the high ash of our inferior grade coals and low ash Coal available in large quantities comparable in quality to coal exported by South Africa etc. it will then be time to consider an export policy.

Leaving South Africa apart in the present political tension between India and South Africa, there are three other countries—Australia, U.K., Eastern part of South China, which may be able to export good quality coal, either coking or steam to India which may be used for bunkering etc. and take back our good quality iron ore of which we have super-abundant supplies, easy terms being arranged for freight by chartered boats, with assured return cargo. This question should be studied by experts and if it emerges as a practical proposition, necessary arrangements should be made with these countries by trade agreements, with a view to conservation of our better grade coal.

Question 37.

India by international convention has agreed to limit the maximum hours of work per shift and to stop female labour working underground. The former had no perceptible effect on the industry and though the elimination of female labour at present leads to reduction in production, production is expected to reach normal levels as soon as more male labour becomes available. Our production will depend more and more on the efficiency of colliery labour and therefore taking a long term point of view, it is desirable for our country to follow gradually the lead of international conventions to improve the standard of life of our colliery workers it being understood the Government will allow the industry a certain lag of time to make the necessary adjustments.

III.—Conservation of High Grade Metallurgical Coal

Questions 38, 39, 40, 41, 42, and 43. No comments.

Question 44.

Owing to shortage of coking coal, during recent years, the supply of good quality coking coal to Steel works had to be supplemented from inferior grade coking coals with which they were blended the quantities despatched to steel works of good quality and inferior coal also varied; in the circumstances no uniform blended mixture could be assured from day to day. This, owing to variations in the constituents of coal in the blend used, blast furnace practice suffered and the quantity and quality of coke oven and blast furnace gases also varied from day to day, with the result that the best economies in the utilization of coal and the resulting coke oven and blast furnace gases became impracticable. Without regularity of supply in definite proportions of good quality coking coal and inferior grade coking coal required for blending and without uniformity of ash in

the inferior grade coal, economic use of coal and its derivative gases is not possible. When washing of inferior grade coal by heavy liquid separation processes makes it possible to reduce the ash content of such coals and the steel industry can buy for blending purposes from the Central Marketing Organisation washed coal with specified percentage of ash, it will be then possible for the steel industry to put its coal and gas practice on a scientific basis. Therefore fuel research in this country should direct itself more energetically towards heavy liquid separation processes for reducing ash content of our inferior coals and secondly the Government should, through its other technical experts, devise a cheap washing plant to suit the general needs of Indian coals made as far as possible from material available in the country, since the present highcost of washing plants would discourage their use.

As regards foreign technical advice, unless these experts are used to coal of similar variation as Indian coal, they may not be of great help before they have studied Indian conditions.

Question 45.

The reasons for restricting the use of metallurgical coal to iron and steel industries and other metallurgical works are :—

- (1) The estimated period of years good quality coking coal will last has not been estimated by practical mining engineers who know the difficulties of coal mining in operation but by geologists. We would therefore take a more conservative estimate of the life of such reserves.
- (2) In the circumstances, public opinion cannot tolerate the use of metallurgical coking coal for power or any other use, as it is very much concerned over the fact that this important raw material for the basic iron and steel industry, taking an optimistic estimate, is not likely to last more than 40 years approximately speaking.
- (3) The existing reserves of high grade coking coals have to be made to last as long as possible by blending them with inferior coals to make a suitable mixture for coking purposes. If these reserves are depleted for power and other purposes, there will be less of such coal available in future to blend with inferior coals.
- (4) Restriction of metallurgical coal to metallurgical uses will give an impetus to coal washing processes, as there will be a general demand for insisting on high ash content of inferior grade coal being reduced by modern methods, as industries would not like to pay freight on higher percentage of ash than fifteen in good quality coal especially for long distance traffic.

Question 46.

Yes, but we do not see where the coking coal is to come from if a third and a fourth steel works are to be started in addition to the present two steel works, as the existing Coal Control is hard put to it to make adequate supplies to them. It is reasonable that before such new workers are started, there should be an assurance from Government that the necessary coal for them

will be forthcoming both in quality and quantity.

Question 47.

There should be legislation that metallurgical coal should not be used for purposes other than metallurgical.

The question, whether it would be advisable to restrict the traffic of coal from such coking coal collieries to destination stations of steel works, requires study as the same colliery may win besides coking coal, other qualities of coal and unless the Steel works are prepared to take the latter also, the restriction suggested would not be a practical proposition.

Question 48.

We do not think such a contingency will arise as the existing two Steel Works and their extensions and the new steel works that may be under Government consideration will require all the coal that will be produced.

It is however, possible that among existing coking coal collieries there may be some nearly exhausted and though their operations may be supported by stowing, they may reach a condition when stowing would not be an economic proposition, for instance if 5 tons of sand are required to be stowed to win one ton of coal. Such exhausted collieries when they reach this stage should be taken over by the State to be worked later in the interests of the country when the higher price of coking coal that may obtain in future may permit the winning of such expensive coal.

Question 49.

Progress has to be made in technical adequacy, administrative efficiency and sense of responsibility to the public in State services before they can be entrusted with the operation and management of industries on behalf of the country and we do not think India is yet ready to assume this responsibility of owning and operating coal mines whether containing metallurgical or any other coal.

IV.—Conservation of High Grade Steam Coal

Question 50.

This term High Grade Steam Coal is only relative; it does not mean that the Dishergarh, Poniat, Kurasia and Pench Valley coals which are classed under High Grade Steam coal can be compared with the first quality steam coals of U. K. and U.S.A. but that among Indian steam coals they are of superior quality.

Question 51.

"Wasteful use" is a relative term. If such high grade steam coals have been in the past used for export purposes without ensuring that looking long ahead there would be sufficient reserves of such good coal for this country for its own use, when the country with its population further increased and its industries multiplied would require for its own need all such superior coal, again if such coal was used for power purposes where inferior coal would do, then such uses for export and steam raising could be called wasteful from the point of view of the country's long term economy. Our view, therefore, is that export of such coal should be prohibited as soon as conditions in South East Asia—Burma, Ceylon, Malay States—are normal

and they should be left to import their requirements from Australia, South Africa etc. Also for local use wherever possible low grade steam coal should be used in place of this high grade coal for power purposes. The proposed regional production and distribution of coal will help in the matter and so will the general use of washing plants. When washing plants make available sufficient tonnage of high ash coal reduced to 15% ash, that will be the time to consider export markets.

Further the conservation of this class of coal should be also considered from the point of view of its use as a raw material for further chemical industries. These industries are just beginning to arise but we must look ahead and see that their future development is not thwarted by the lack of high grade gas coal.

As it is very desirable for the public to know what approximately are the reserves of high grade steam or gas coal in the country, the Government should have a survey made by expert geologists and mining men.

Question 52.

Please see our reply to question 51.

Question 53.

The arguments expressed in our reply to question 49 against the State owning and operating metallurgical coal also apply in the present case of high grade steam coal.

V.—Conservation Generally

Questions 54, 55, and 56. No comments.

Question 57.

Please see our reply to Questionnaire I under the heading 'General', where we have stated that stowing should be compulsorily enforced for all coals as coal, whether metallurgical or steam, is a most valuable asset for the use of generations yet unborn and as such the major cost of stowing should be borne by the State as it is the custodian of the interests of future generations who will mostly benefit by the stowing of different kinds of coal as proposed by us.

Question 58.

Stowing in the interests of conservation of all coals should be made as cheap as possible and from that point of view it is desirable Government should acquire sand rights and deliver sand for stowing free of cost. This proposal is included in our general suggestion that the State should bear the major part of the total expense, since the chief beneficiaries of all stowing round stowing will be the future citizens.

Question 59.

As we have suggested that the mineral rights belonging to lessors should be taken over by the State, this question does not arise.

Questions 60 and 61. No comments.

Question 62.

As recommended by our President elsewhere, we urge "the development of electric power from the low grade coals of Bengal and Bihar by the establishment of 2 or 3 large power houses in the colliery area, in collaboration with the Central Government, the

Governments of Bengal and Bihar, the Railway Board and the existing large distributors of electric energy in these areas, these power houses to supply the necessary power for industries and agriculture in these provinces as well as for the electrification of the Railways within a range of 100 to 150 miles from Calcutta. The advantages of the scheme are (a) relative preservation of first class coal required for metallurgical purposes (the stocks of which are very limited) which is being used for steam raising in locomotive and for power generating purposes; (b) large consumption and better utilization of low grade coals which are being neglected in spite of their immense potential and existing supply; (c) concentrated use of low grade coal in two or three larger power houses will make it practicable to utilize its byproducts; (d) considering that it takes 3 days for coal wagons to reach Calcutta from collieries and 3 days for their return from Calcutta to collieries, the supply of electricity to Bengal etc., from the proposed power houses in the coal-fields and the suggested electrification of the Railways will greatly relieve the wagon shortage and the serious congestion in traffic as it will mean so much less coal to be transported for locomotive power and generation of electricity towards Calcutta side and other places; (e) the electrification of the Railways proposed, which will require skilled labour, will give an impetus to technical education in the Eastern Provinces; (f) and strategically a power station in Colliery area would be less vulnerable to air raids, 100 to 150 miles away from Calcutta.

In some quarters the following objections have been raised against this scheme:—

- (a) That there is not sufficient water in the colliery area to enable such large power houses to operate. The answer to this objection is that by damming the river concerned, not only sufficient water can be obtained but it will obviate the danger of annual floods from rivers like Damodar; secondly, in the dry season, water from the pits after due treatment should be available.
- (b) That the density of traffic between collieries and Calcutta would not justify electrification of Railways between these areas. Our reply is that this is taking a narrow view of the proposal limited to the present experience. It is natural to expect that the development of cheap electric power in the coalfields from low grade coals will lead to an intensification of the existing tendency for industries to be established near coalfields, not to speak of the fact that the greater vulnerability of the Calcutta area to air attacks in the present and future wars is and will be instrumental in industries preferring a location near the coalfields to a site near Calcutta.
- (c) That industries in Calcutta will suffer in case of a breakdown in the transmission line etc., from power houses in collieries to Calcutta. All over India, in the Punjab, Madras and Bombay and all over the world, industries supplied with energy

from long distance power houses put up with this slight risk which is reduced further every year by technological progress.

- (d) That the electrification of the railways will not be justified as a commercial proposition, since the cost of electrification will be extremely heavy and that the loss of transmission will be so great that it would be cheaper to haul coal to Calcutta and continue to generate electric power at Calcutta. Our answer to these objections is that whether it is a commercial proposition or not should not be judged on the present estimates but on the probability of these areas being intensely developed industrially in the post-war era. As regards transmission loss, it is common to all long distance transmission lines. We may urge that the scheme of power generation from low grade coal and electrification of railways between the colliery area and Calcutta should be judged as a whole, and when individual aspects of the scheme are subjected to criticism, it should not be forgotten that the indirect advantages of the scheme, namely the utilization of low grade coal on a larger scale so as to make the winning of by-products and economic proposition and the saving of metallurgical coking coal from being used for steam purposes in industries and locomotives are immensely important for the country though these advantages could not be translated in "rupees, annas and pies."

Question 63. If low grade coals are subjected to low temperature carbonisation, after the recovery of by-products, some sort of coke will remain. This form of fuel is not popular among domestic consumers, as it breaks easily owing to very high percentage of ash. In order to improve on this, it is suggested that before high ash coal is carbonised, its ash should be reduced by the washing process. This may be experimented on by Government Fuel Research Department.

Question 64. No comments.

VI.—Mining Leases and Fragmentation

Questions 65, 66 and 67. No comments.

Question 68. Please see our reply to question 7 of this Questionnaire.

Question 69. Please see our reply to question 3 of this Questionnaire under the sub-heading "Privately owned collieries belonging to owners who are not consumers" for some of the difficulties of uneconomic collieries which may be described as collieries inadequate in size and investment of capital to win and handle their coal efficiently. Such concerns in times of depression cannot hold their own and therefore the tendency is to sublet portions of the assets held under direct lease. The subleases undergo the same process and fragmentation results. Also the peculiarly easy nature of the Jharia coal seams which

in the beginning lent themselves to easy working without much capital cost is also responsible for the large number of small collieries on the Jharia field. Heavy *salamis* paid to lessors generally from monies borrowed would also encourage such sub-leases either owing to the necessity of paying back the borrowed money or owing to the difficulty of recovering the *salami* from their uncertain profits in normal times.

Question 70. Such holdings are not in the interest of the country. For some of its evils, please see our reply to question 3 under the sub-head "Privately owned collieries belonging to owners who are not consumers." The greatest harm such holdings do consists in the damage they cause to the reserves of coal in their property and neighbouring property by their unscientific manner of trying to win coal anyhow.

Question 71. Legislation should be enacted to ensure that areas leased in future are of proper economic size and the lessee has adequate capital to work the property on modern lines over a long period of years. State ownership of mineral rights implemented by legislative powers for amalgamation of leases, where possible or desirable is the remedy. Though the compulsory powers to amalgamate need not be enforced, the fact that the power is there would enable voluntary combinations to be formed. In this connection, please see our remarks regarding small collieries in our reply to question 10 of this Questionnaire.

VII.—Opening of New Coalfields.

Question 72. No comments.

VIII.—Administrative Measures.

Questions 73, 74 and 75. Please see our reply to question 35 and question 2 of this Questionnaire.

ORAL EVIDENCE OF M/S. D.C. DRIVER AND A FARQUHAR REPRESENTING THE COAL CONSUMERS' ASSOCIATION.

Question.—Could you tell us something about your Association ?

Answer.—Our Association was formed last year with a view to guarding as far as possible coal consumers' interests. When we found that the producers formed an association of their own called the Selected Trade Association or something of that sort, for the sale of coal, we thought that some sort of an organisation on the part of important consumers would be desirable and with that object the Association was formed. It consists of major cement companies, the 3 major iron and steel works, some cotton mills etc. and the total membership comes to 62.

Another object in our forming this Association was that we should educate the people as regards this big question of conservation which will become a more important problem in the second or third generation henceforth, not to speak of its importance even for the present generation.

Question.—In your memorandum you have emphasised in many places what you call a co-ordinated sequence of extraction. Is it your opinion that this should be enforced without regard to the requirements of the market ?

Answer.—No. This is a reference merely to extraction which must also depend on the demand of the market. We intend that the production of coal must be rationalised ; but if the consumption of coal is not rationalised, this co-ordinated sequence cannot be adopted. To each seam must be allotted a particular class of industry that can consume it and in that way a co-ordinated sequence of extraction is possible.

Question.—Your view seems to be that stowing for conservation is necessary for all grades of coal. Should not short term economic considerations influence a decision in this matter ? Is it your opinion that stowing for the purpose of conservation should be adopted in respect of all grades of coal ?

Answer.—Yes, certainly where stowing is necessary to prevent destruction of assets. For all grades of coal from the point of view of the present generation as well as future generations, because coal is a very important asset. It is a valuable thing for hundreds of years, irrespective of the present economic considerations.

Question.—You have stated that wasteful methods of coal extraction still continue. Could you give us some instances ?

Answer.—Well. It is well known that in certain places in Jharia coalfield to-day this wasteful method of extraction results in at least 40 per cent of the coal being wasted. That is in actual extraction, without adding the additional quantity in barriers, buildings, etc.

Question.—Those barriers which are responsible for the loss of coal, potential loss of coal, are really determined by the terms of the leases.

Answer.—Barriers may or may not be stipulated in the lease but are provided for under the I.M. Regulations in all Collieries. On a boundary between two lease holders it is incumbent on both lease holders to leave a barrier along the common boundary.

Question.—Are there any prominent factors in present extraction methods which lead to waste?

Answer.—Mining of thick seams without stowing causes loss of large quantities of coal.

Question.—Should not the cost of stowing be borne by the owners.

Answer.—We are stowing for the future generation and the custodian of the future generation is Government. I would not suggest that the owners should pay.

Question.—Have you any idea in regard to what portion of the expenses should be borne by the State ?

Answer.—Certain progressive operators of Collieries have already adopted voluntary stowing. In order to get sand supplies from the Damodar river, aerial ropeways have been put in, to trans.

port sand for individual operators but there has been little or no co-ordination. If the scheme came within the jurisdiction of Government and it was incumbent on them to make supplies of sand to the pit-head, then more co-ordinated schemes could be arranged and duplication of aerial ropeways avoided.

Question.—What about sand supplies ?

Answer.—All sand supplies at the moment are under the jurisdiction of private parties and agreement must be entered into with them for supplies on a royalty rate. Further potential users of the sand for stowing are not convinced that there are adequate quantities in the Damodar river. This is a matter for further investigation. Whatever happens, however, sand supplies should be delivered free at the colliery surface point of stowing.

Question.—In your opinion, export of high grade coal should be definitely prohibited ?

Answer.—Certainly.

Question.—Will it have any influence, conditions as they are today, on overseas demands for Indian coal?

Answer.—Overseas demands should be met from countries which have surplus coal reserves of the quality they require. These requirements of overseas countries should not be permitted to further deplete the already short reserves of our best coals. As a temporary measure until such countries can adjust themselves only non-coking coals should be exported. Alternatively coal washing should be adopted to improve our inferior coal seams of non-coking nature and if it is proved that there is a supply beyond the needs of this country exports of this class of coal can be maintained. It is not in the interest of India, however, to export such raw material and it is better for the economy of the country that all coal should be utilised for producing manufactured materials. On no occasions should gas coal be exported from the Dishergarh or Poniaty seams since they are valuable reserves and also in danger of exhaustion.

Question.—You have suggested at p. 5 of your Memorandum “when the lower grades coal is washed and de-ashed in future, it will be then considered whether it should not be made available for export”.

Answer.—If the coal is washed and de-ashed and if the percentage of ash is reduced to 13 to 14, then that coal should be exported, provided it is not a coking coal.

Question.—You are aware that, in the process of washing, the coal is to be crushed to sizes perhaps about less than 1". Is that class of coal suitable for export ?

Answer.—Many people have a very great misunderstanding of the various processes by which coal can be washed. It is not necessary that coal should be crushed except in certain cases for washing. The chance Plant and others can also wash coal and at the same time produce a good

size of steam coal 5" cube. Some Plants are even washing coal larger in size than 5".

Question.—Is it your opinion, that adopting a process of washing which will leave a washed coal of the 5" size will necessarily give us good results ?

Answer.—Certain makers of washing plants can give guarantees to clean coal by washing and give a steam size as indicated in the previous question viz. 5" cube. No doubt it may be beneficial to crush the coal to a fine size before washing in the case of metallurgical coal since the coal is to be crushed in any case before converting into coke. It is not essential that this should be done for market steam coal. This is a question for further research.

Question.—Then the statement requires qualification.

Answer.—Yes. It is a question for further research as far as metallurgical coal is concerned but certain types of coal washing plants can definitely give that steam coal size.

Question.—Even if 5" size coal is obtained, do you consider that would be an ideal size for export and bunkers.

Answer.—It does not matter what the size of the coal is, provided it can be used, and 5" size is most suitable for the purpose.

Question.—Your recommendation about banning the export of coal. Does it cover also bunker supplies ?

Answer.—Bunker supplies would come to about 9 to 10 lakhs a year and ultimately if you find that quantity of coal should be saved, it should be possible for us to get foreign coal into India for bunkering purposes. With washing there should be sufficient for Bunkering.

Question.—Get foreign coals into India ?

Answer.—Foreign coals have been brought to India in the past and it is a question of economics.

Question.—From where ?

Answer.—From Australia and, if the present political conditions ease, from South Africa. We should not allow sentimentality to cloud our views ; I think it would be in the country's interest, because our coal which is very important for us will be saved.

Question.—Are you quite sure that similar problems do not face South Africa and Australia?

Answer.—So far as Australia is concerned, they are going to increase the production very largely. Somewhere I have suggested that a time might come when we might import coal from Australia and the East coast of China and, if necessary, from U.K. in chartered boats and send them back our best quality iron ore of which there is a great surplus. We are exporting iron ore at present to England. When a joint arrangement is made possible, we shall send them our iron ore and bring back from there good quality coal.

Question.—You have suggested that Government should put up a Central washing plant. Have you taken into considerations all the economic factors attached thereto?

Answer. Yes. Unless we make a complete survey of the physical and chemical properties of all coals it would not be possible to have a central washing plant because our coals vary so much in the ash content and other properties. After the survey is made, that should be our objective, either a private company should put up central washing plants or Government may render that service to the trade. This question should await a complete survey of all coals.

Question.—You are assuming that the responsibility is that of Government and not of the consumers or producers. Is there any parallel in the world where Government has instituted and taken the responsibility? Is it a common practice?

Answer.—The common practice is that private interests, in other countries have instituted their own central washing plants. But in this country the conditions are usually different from those in other countries and my main consideration was how are we going to help small collieries in washing their coals?

Question.—You are afraid of the increase that will inevitably happen in the cost of coal.

Answer.—The price will inevitably increase on account of washing charges and the rejections from washing which will have an adverse effect on production cost. The consumer, however, who finds it necessary to have this coal will doubtlessly be prepared to pay a reasonable price. Owners of small Collieries and small productions will not be in a position to find the capital cost for installing a washing plant and some sort of central washing scheme must be essential to meet such conditions. Experience of the past has shown that such small Colliery operators will not combine for the purpose and only a central scheme backed by Government finance or by a private concern with the necessary capital could undertake such a proposition. Since this is a matter which affects the country generally, the proposition should be sponsored and backed by Government.

Question.—You have suggested that the railways equip themselves to cope with the traffic, coal traffic, at its peak period?

Answer.—Yes.

Question.—You will agree that they will require considerable additions to the rolling stock to cope with the peak demand?

Answer.—The railways have recently explained that the wagon supply shortage and the loco shortage is chiefly due to heavy repair problems. It is obvious that a sufficient allowance is not made for these. If they are not prepared to make additions for maximum loads at the present time, what are they going to do with the rapidly increasing normal loads due to the further development of the country. The railways are public carriers and must be in a position not only to deal with normal traffic but also to take loads as in the case of other public utility companies such as electric power concerns who

install equipment to meet such maximum conditions.

Question.—I am asking whether you will require the railways to equip themselves to meet the peak demand; though a portion of the rolling stock will necessarily lie idle in the slack months?

Answer.—Not necessarily; if more of the rolling stock was taken to the workshops during the slack periods for repair the railways would be in a better position to handle maximum demands.

Question.—It means extra expenditure which may involve increases in freight.

Answer.—The railways adopt a short-sighted policy. If they were in a position to meet all the traffic offered to them there would be no necessity for an increase in freight rates. In fact the railways are not only hampering the development of industrial concerns but are losing revenue through being unable to meet the demands of traffic.

Question.—So you will advocate more rolling stock in spite of increase in freight.

Answer.—I would still advocate increase in the rolling stocks of locos of the railways even if it did necessitate increase in freight rates. With the developments in progress for industrialisation in the near future what is the peak demand at present will become normal at a very early date. If immediate action is not taken by the Railways to meet peak demands now they will again be too late to meet normal demands in the future.

Question.—Would you agree that with increased industrialisation, that is more production of industrial goods it is possible that the slack season and the busy season may disappear?

Answer.—I should think so on account of increasing mechanisation at the mines.

Question.—You have expressed an opinion that the present control of distribution should continue until the railways can show a sufficiency of wagons. What is your thought on the statement that the system of priorities gives an undue or unfair advantage to producers of high grade coal?

Answer.—If high grade coal is required for certain important basic industries, how are we to avoid that? It is only an incident in the whole case; if good quality coal is required by basic national industries like iron and steel and others, we have got to take coal from producers of high grade coal and if by giving priority to those basic industries, other kinds of coal suffer, I don't see what alternative there is.

Question.—From your experience and knowledge of Indian coals what do you think is the practicable range of reduction in ash content we can look forward to by washing?

Answer.—From the research work already done it appears that the ash content of nearly all our seams cannot be reduced by washing by more than 4% to 5%. It is not a question of ash alone but one of consistency. I should say this applies not only to the metallurgical industry but also to other consumers of coal. I would also say that most beneficial results from a washing plant in India would be the decree of consistency obtained in the quality of coal. The metallurgical industry for example can operate on 15% ash basis but this must be consistent and steady.

Question.—Would you consider coal of an ash content ranging from 35 to 28% as inferior coal?

Answer.—Yes, very inferior. I may say that a former Chief Inspector of Mines in his evidence before the previous Committee of enquiry stated that anything over 20% of ash was not coal at all.

Question.—I am asking your personal view.

Answer.—I shouldn't like to commit myself on that like a previous Chief Inspector of Mines. The ash percentage depends on the particular purpose for which the coal is required.

Question.—We have received a statement from two organisations of the industry to the effect that certain consuming industries, iron and steel companies, in their own interests try to bring down market prices by offering their own coal for sale at a very competitive price although their own output has always been far below their requirements, thus forcing them to buy heavily from the market.

Answer.—Before 1935 or 1936 Tatas were selling the coal because considering the contracts they had made with other companies for the supply of coal, now and then it happened that besides their own coal there was a surplus left. That is now an old question. Since 1935 or 1936 no more coal has been sold by the steel company but as regards the Indian Iron and Steel Company I understand for several years they have also ceased to sell coal. So this question is not alive now.

Question.—You have suggested that the Railways should offer to put up the sidings at their own cost. What do you consider the minimum output of a colliery claiming this privilege of having a siding constructed at Railway cost?

Answer.—Say about 6,000 tons a month.

Question.—What comments have you to make on the statement made before us by certain producers that this figure should be about 600 tons a month for?

Answer.—The adverse conditions created through colliery fragmentation have already been brought to your attention and the best means of subsidising colliery fragmentation is by the construction of small capacity sidings and this should be strictly limited and controlled. I have also been considering what authority should deal with this and I am afraid that there is not a suitable one at the present time. As long as fragmentation is permitted and there is no controlling authority we shall still have small sidings where the production may even be less than 600 tons per month. The Chief Inspector of Mines, however, might be sanctioned this authority, to control and sanction small sidings until an authority has been established.

Question.—Since the Chief Inspector of Mines is primarily concerned with safety, you think that this function should more appropriately be given to the Coal Commissioner?

Answer.—Yes, whoever the authority is provided fragmentation is controlled.

Question.—In so far as coal is concerned there are certain prominent categories of administrative control which may be broadly classified as question of leases, regulating of mining method, safety, production, distribution, prices, research, labour, wages, amenities, education, sanitation in the fields, labour welfare, etc. In your opinion is it possible to divide up these categories into two broad headings, responsibility for one or the other to lie with the Central and Provincial Governments?

Answer.—So far as I have thought about the question, if the responsibility is divided the efficiency will not be there. It should be regulated from the centre because different Provinces have different points of view and if according to your system a broad procedure is adopted in one Province, say, in Bihar, and if the Bengal Government does not agree to adopt that procedure there would be confusion. So taking things generally I would suggest that the control should be vested in the centre.

Question.—Among the various advantages you have given us of the managing agency system, there are the provision of financial assistance, of technical assistance, nursing of collieries in times of depression and the economics of large scale purchase of stores. But assuming the various measures you have suggested for active participation by the State in the matter of administration of the coal industry, for instance, the setting up of a financial corporation for assistance to small industries, centralised research, centralised marketing agency for regulation of use of all coal, etc., do you still think there is place for the managing agency system?

Answer.—I interpret your question as follows: If the Government helps coal industry in respect of the various items—giving of technical experts etc., do you still think there is a place for the managing agency system?

My experience is that Government may give financial help, as well as technical assistance, but it will be a dilatory process and a lot of time will pass between the application for help and actual giving of it. At present under the managing agency system it will be a matter of weeks to arrange the financial assistance, but if the application is made to Government, then I am afraid, so many forms will have to be filed, so many enquiries held, so many references made to the Finance Department that if the help is wanted in 1946 August, it may come somewhere in October 1947. That is my experience of the Government machinery as it operates in India to day.

Question.—In the context of your representative capacity of the Coal Consumers' Association, I want to know your reactions to the formation groups or cartels amongst the producers such as the Calcutta Selected Coal Association and the effect of such combinations of producers or consumers' interests.

Answer.—In the past, in many countries, cartels have gone adverse to the interests of consumers but in the present circumstances of India, I do

not think the Selected Coal Association will go against the interests of the consumers.

Question.—In view of your remarks about Managing Agents, may I take it that you will welcome large-scale development of coal production units under the direction of Managing Agents?

Answer.—If there is no other alternative, then this Agency system should be continued. As far as the coal industry is concerned, there would have been no development of the coal industry without the help of the Managing Agents.

Question.—As representative of the consumers, you consider there is no objection to the consumer interests owning their own properties of coal?

Answer.—I have no objection.

Question.—Would you also say that they should not have any disproportionate ownership of such coal mines?

Answer.—They should not. If Tatas had owned more mines it would have been to their advantage but it might not have been in the interest of the country. My opinion would be that 40 or 50 per cent would be supplied from their own collieries provided the balance is guaranteed from other sources.

Question.—Regarding the Railways?

Answer.—The same principle can be applied to railways.

Question.—What are the particular advantages of State acquisition of mineral rights?

Answer.—They arise from the point of view of nationalisation. This question might come up 30 or 40 or even 50 years hence. This will be the first step to nationalisation. The policy of the country gradually tends towards nationalisation, I do not say immediately. You must lay the foundation by acquiring mineral rights now. Because if you were to do it 30 or 40 years hence it may be more complicated still.

Question.—If the Government were to take part in and direct the issue of new leases and the terms of new leases and at the same time if there be a vigilant inspection department, would not the same purpose be served?

Answer.—No. You acquire these rights, I would say for the necessary nationalisation some time hence.

Question.—And you seem to be convinced that 'nationalisation' will come sooner or later.

Answer.—Sooner or later it is sure to come. The tendency is like that.

Question.—I am rather at a loss to reconcile your advocacy of the first step towards nationalisation and your great hesitancy in proposing measures to rectify the defects in the administrations of small collieries. You still advocate that with all the complications prevalent today in the matter of fragmentation, leasing of small holdings

and that sort of thing, a voluntary basis would succeed.

Answer.—I suggest that legislation should be enacted but too much use of it should not be made; we should try to persuade the small collieries to group together and amalgamate voluntarily.

Question.—Since you drew your attention to the British parallel, are you aware of the fact that voluntary amalgamation proved a failure?

Answer.—Let us have first legislation on that line. We have the arm of law to effect amalgamation. I am merely sugaring the pill.

Question.—Have you any idea about the various defects about the mining leases to day?

Answer.—Apart from the question of fragmentation which is encouraged by landlords, the other Chief defect is the absence of in-stroke and out-stroke rights which prevents centralised production on a large scale. Small properties do not justify the capital outlay necessary for a long period of operation.

Question.—Keeping in view the recommendations you have made about regulation of the use of coal, the effect may be either curtailment of production at certain individual units or closing down of certain collieries. Do you think there is a case for compensation in this respect?

Answer.—Yes.

Question.—If so what would you think should be basis of compensation?

Answer.—I would find out what is the tonnage of coal left in the mine and on that basis I would acquire the property and the compensation would be on that basis.

Question.—You suggested you would acquire the property; that would mean that you would like the State to acquire such mines as are affected by the drastic regulations on the matter of use of coal?

Answer.—I am mainly thinking of metallurgical coal mines.

Question.—Has not similar curtailment of output been known in other industries?

Answer.—Yes. I think the sugar industry orders were passed by the Bihar Government and there certain sugar mills closed down without compensation but the conditions of the sugar industry are not analogous to the conditions of the coal industry; at the time when the sugar restriction order was passed there was so much production of sugar and so little supply that even if the restriction was not imposed the sugar mills which were closed down, would not have made any amount of profit. But, we are not going by that instance and use that parallel for the coal industry. The coal industry is in quite a different state. Here the question of production exceeding demand does not arise and will not arise for sometime and besides the sugar industry is a seasonal industry. They buy sugarcane from outside and crush it at the mills.

Question.—You recommend acquisition by the State of certain mines which may suffer owing to drastic restrictions. A time may come when the market may demand opening up of those mines. Is it your suggestion that the State should keep those mines as a sort of a reserve for future operations by themselves?

Answer.—Yes.

Question.—Question 10. Could you elaborate this suggestion of a holding company?

Answer.—As regards smaller collieries it is one of the solutions—one solution is amalgamation and another is a company to be started by smaller collieries so that as far as possible they may be rationalised in the holding company. Government should take a share.

Question.—Do you think it is a practical suggestion that the smaller companies, by themselves or under direct inspiration from Government, will be able to form a holding company of this nature in view of the past history of the industry?

Answer.—Yes. I had suggested that legislation could be enacted first to amalgamate and with that hanging over them they will either amalgamate voluntarily or they will see if it would not be better to start a holding company because the point of view of Government and the public is that the smaller collieries are not able to rationalise themselves.

Question.—It has been suggested to us that if we were to rationalise the supply of coal to the Railways and to the Steel Works and keep a firm control on the quality of coal supplied to Railways as well as on the prices at which that coal is supplied we need not take any other steps in the matter of regulating the use of coal for the rest of the consumers. Do you agree with that?

Answer.—I don't agree with that view.

Question.—You feel that the time has not come for a Central Marketing Agency. This Agency will help to stabilise the prices of coal as well as to ensure its utilisation in the best possible manner.

Answer.—Our view is that such an Agency destroys the freedom of trade of the collieries. Such a revolution should come gradually. An essential preliminary step is the chemical and physical survey of coals. Then we shall be able to tell them "You require coal for brick manufacturing; you take this coal".

Question.—If they are dissatisfied with the supply?

Answer.—They cannot be dissatisfied because the coal will be generally surveyed and the physical and chemical properties of the particular kind of coal will be ascertained before it is offered to the brick-makers for use.

Question.—You have suggested under question 20 that the return to competitive methods will be fatal and that Government control should continue with the priority system as at present enforced. How long do you envisage that this state of affairs will continue and that the control should continue on the present lines?

Answer.—The control over distribution and price should continue till the country is ready with its marketing scheme and the control may be gradually merged into that scheme.

Question.—You are not advocating this control because of the very great shortage of coal?

Answer.—No. But more as a prelude to the larger rationalisation scheme.

Question.—Why do you say that the cost of production of inferior grade coal is very much lower than that of higher grade coal?

Answer.—The selected grades of coal are being produced from the mines which are mechanised. A great bulk of the inferior coal has been produced without any mechanisation and from shallow depths.

Question.—What are your views on the question of small size holdings or fragmentation. We are told that no colliery large or small that is working at present can be described as an "uneconomic holding".

Answer.—No colliery large or small at present is an uneconomic holding, because the consumption demand in the county is greater than production. But if the swing is to the other side, that is when the production is greater than the demand then I am quite certain that 50 per cent of these small holdings will again become uneconomic, as they had been.

Question.—What are the objections to small collieries?

Answer.—Well, my principal objection to the small holding is: As they must comply with the terms of the leases, the mining regulations, there is bound to be loss of coal in barriers.

Question.—It was put to us yesterday that the loss of coal in big collieries is greater than in the small ones.

Answer.—I do not think so.

Question.—Do you think the present prices of coal are reasonable?

Answer.—I think, so far as good quality coal is concerned, it is reasonable. For the inferior grade coal, I would suggest that the same proportion that existed before the war between good quality coal and inferior quality coal should be preserved.

Question.—What about the prices of soft coke and hard coke? Do you think they are reasonable?

Answer.—Yes.

Question.—Is it not the case that as far as the present circumstances go, many of the industries would be prepared to pay higher prices, provided they were assured of a steady supply?

Answer.—That is so.

Question.—On the subject of marketing of coal your view is that the existing control by Government over distribution should continue until it can be replaced by a Central Marketing Agency and that the Central Marketing Agency can only

come into being when there are sufficient data available for the use of all coals to be regulated. That is to say, certain types of consumers will be told that they can only use certain types of coal. Is that correct ?

Answer.—That is correct.

Question.—That means that you, as Consumers' Asscn. of India, are suggesting to us that henceforward and for ever no consumer shall have the right to the coal he wants and that research and a general survey will ascertain what quality of coal as regards ash and other things would be suitable to the particular industry. This view, i.e. regulation, does not tally with the views that have been expressed by certain others. In particular, I refer to the speeches by representatives of the Bengal and Cawnpore Chambers of Commerce at the last Associated Chambers meeting when they were emphatic that the consumer should have the right to free choice of the coal he wants.

Answer.—We are asking for rationalisation. We should not go back on the good things already achieved by the present control.

Question.—The point that I want to bring out is : the views you have expressed do not supersede the views that have been expressed on other occasions by such people as the Cawnpore Chamber.

Answer.—From the consumers' point of view, rationalisation is essential.

Question.—Are you speaking for all consumers? for example, Cawnpore is a big consuming centre ; are any one from there members of your Association ?

Answer.—Yes, some factories are our members.

Question.—Ahmedabad : are they members of your Association ?

Answer.—Some of them are. Our Association consists of only industrial members consuming coal. The Associations you have mentioned may be biased by the large membership of non-consuming interests.

Question.—Your principal interests are iron and steel.

Answer.—Besides Iron & Steel Cement industries, some cotton mills, paper mills, Engineering, Chemical, Potteries, Electricity Supplying Companies, Sugar etc.

48. WRITTEN EVIDENCE OF THE AHMEDABAD MILLOWNERS' ASSOCIATION.

QUESTIONNAIRE I

Question 2.—The present output of coal in India is not sufficient to meet the requirements of Industry and therefore my Committee are opposed to any export of coal from India.

Question 7.—The regarding of seams of coal is necessary for the guidance of the consumers.

Question 8.—The conditions of industries are different all over India. It is, therefore, essential that the grading of coal for internal markets should be made compulsory in order to enable the consumers to make selections of coal according to their individual requirements.

Question 13.—There are not adequate facilities for movement of coal due to shortage of wagons etc., therefore steps should be taken to increase wagons, siding etc. in order to cope up with the demand.

Question 18.—Sidings are not given in all cases whenever it is possible to do so. Therefore my Committee are of opinion that in such cases facilities should be given immediately.

Question 22.—The demand of coal by Textile Industry is continuous throughout the year and is not possible to stock large quantities at a particular time. Therefore my Committee are not in favour of introduction of seasonal rates for coal industry.

ORAL EVIDENCE OF MR. SHANTILAL MANGALDAS, (PRESIDENT) REPRESENTING THE AHMED- ABAD MILLOWNERS' ASSOCIATION.

Question.—You have stated in your brief memorandum that you are in favour of the compulsory grading of coal for the internal markets. Would you go so far as to suggest that in order to utilise our coal resources in the best manner possible, a complete regulation of the use of coal should be enforced ?

Answer.—In view of the greater industrialisation that is going to come in the country—which must come to raise the standard of living, so to say—it is necessary that for some time to come, at least for 10 years, production of coal and distribution should be controlled. Pre-war, the consumption was slightly less than production and so there was a problem as to how to deal with the surplus coal and we had to support exports. The position now has changed. In war time, many new industries have come to stay. They are using more coal and they will continue to do so. So, our view is that Government should continue to control distribution as well as prices for a fairly long period.

Question.—At present there is a sort of rough and ready control. Have you any comment on it in regard to distribution ?

Answer.—The method adopted is not actually scientific. So, we want the control to continue, but it must be more scientific. For that a thorough investigation should be undertaken and consumers and producers should both be taken into greater confidence. As regards the control as it now functions, I would say that consumers are absolutely dissatisfied with the quality of coal they are receiving, specially the Ahmedabad Mills. The supply of lower grades of coal from Bengal, a distance of 1200 miles, seems quite wrong. The longer the distance coal has to travel, the better the quality of it should be.

Question.—Could you tell us what your pre-war sources of supply were roughly?

Answer.—There were two or three sources of supply to Ahmedabad. One was C. P. The others were C. I. and Bengal collieries. The nearer collieries' coal should always be encouraged to go to the nearest consumers. We were getting, say 60 to 70 per cent of the coal from C.P. and C.I. collieries. The distance is nearer and it is more economical to burn that coal. It was upset during the war. Really, the C.P. and C.I. coal should have been exclusively used by the Ahmedabad area, since it means less haulage.

Question.—Were you completely satisfied with the performance of the C.P. and C.I. coal?

Answer.—Yes. We must have C.P. and C.I. steam coal, then we shall be absolutely satisfied. We cannot use slack coal in our Lancashire boilers. The freight on coal from the nearer collieries should be so adjusted that it will never pay to burn Bengal coal in Ahmedabad. So, even without having a regulation of use, each mill will purchase C.P. and C.I. coal.

Question.—Your present off-take of coal is about 600,000 tons a year. Are there any projected developments in the next 2 to 5 years which may necessitate and increased consumption of coal?

Answer.—According to Government's decision, no new mills are to be installed in British India in the Ahmedabad and Bombay area. I am only talking about textile mills. But some States like Kathiawar and Baroda have been permitted to put up half-dozen or so textile mills, and they will require additional coal.

Question.—Do you think it is possible to regulate use in practice without some sort of controlled marketing?

Answer.—That may not be possible. But the freight rates can be readjusted. All the railways are now owned by Government. It may mean a little reduction in their earnings during the year. But I can say that if there is readjustment in freight rates so that it will be advantageous to have C.P. and C.I. coal, not even one ton of Bengal coal will be imported into Ahmedabad.

Question.—Do you agree that Government must retain control over marketing in its hands for the purpose of the regulation of the use of coal all over the country?

Answer.—I think so. Government should control even the market, especially when the country is on the threshold of further industrialisation.

Question.—Outside C.P. & C.I. coals, will there be any special requirements of the Ahmedabad mills from Bengal or Bihar?

Answer.—Yes, coking coal to a very small quantity, for smithy work.

Question.—Have you any views regarding the prices of coal?

Answer.—Yes. The present prices we think, are on the high side, and the distinction in prices between colliery to colliery which existed pre-war does not exist now. So far better coal or inferior we pay the same price. The difference between slack coal and steam coal should be more than what it is now. It is much less at present as compared with pre-war levels. The increase in coal prices has placed textile mills using coal at a competitive disadvantage with mills using electricity as in Bombay. Pre-war a Bombay mill was paying X for electrical energy and we were paying Rs. 17 for our coal. Now, Bombay mills continue to pay X and we are required to pay Rs. 35. I don't say that I am not earning a profit, but our cost is taken into the average of all other centres of India while fixing price. The present cloth rates yield us C profit but Bombay gets C plus 3 or 4. If the present price of cloth is adjusted according to the Bombay cost, we would be no where. Ahmedabad is a national textile centre and if it is to exist in competition with other centres it must get a reasonable reduction in coal prices or freight.

Question.—Coming to an alternative source of power for Ahmedabad Mills you would continue to require some coal even if they are put on oil basis.

What is the percentage of coal which you will require even if you go on to oil?

Answer.—If we go to oil we will not require any coal. But if we go to electricity we require coal for heating.

Question.—If you go on to electrical working then you will need some coal for steam raising?

Answer.—Even if we go to electricity, the electrical power house will require the same amount of coal. Though conversion into electricity may be a more efficient use of coal, what is gained on efficiency will be lost on the droppage in carrying the power from the power house to different mills, unless, of course, each mill has a separate generating unit.

Question.—You are aware that proposals are under consideration for converting the Ahmedabad mills to the use of oil. What is your attitude?

Answer.—I want your influence now. I want you to report strongly. Ahmedabad is ready to go on oil but the present freight from Bombay to Ahmedabad for oil is so prohibitive that it does not pay to change to oil. These rates were kept prohibitive purposely because pre-war we were on all coal and the railways were not prepared to forego the freight on this coal in case we purchase oil.

Question.—Let us take it step by step. Your Association representing all the textile mills in Ahmedabad is prepared for the conversion to oil burning. Are you in favour from the efficiency consideration?

Answer.—We are prepared on certain consideration. They are that we must get our oil at

an economical rate compared to the price of coal. At present there is pressure from the Government upon us that we should go on to oil even at the present price which works to 25% increase of cost.

Question.—Suppose the price of fuel oil is brought down would your Association be prepared to go in for oil?

Answer.—We are getting for 35 rupees a ton of coal and if it goes down to 30 rupees.....

Question.—No body can guarantee future prices.

Answer.—Why then should we change over unless there is a guarantee from the Government that at all times the parity between the cost of oil and the cost of coal will be maintained by the adjustment of freight rates from Bombay to Ahmedabad.

Question.—You are aware that whatever oil is required in this country has got to be imported. Will you be content to face the risks of stoppage of imports in times of emergency?

Answer.—I am coming to that point. There will have to be another guarantee. In the event of oil ceasing to be imported the Ahmedabad mills should be permitted at once to switch over to coal.

Question.—Are there any special advantages or disadvantages in these two methods, use of coal and use of oil?

Answer.—In oil there are some advantages. There is cleanliness no clinkering, no disposal of ashes and you require less number of persons to operate.

Question.—Is it a very radical change in boilers and other equipment to convert from coal to oil or *vice versa*?

Answer.—No. You have to spend about a lakh of rupees, that is all.

Question.—Provided the two assurances you ask for are forthcoming, you will prefer to go on oil?

Answer.—We do not prefer to work on oil but we have no objection to take to oil.

Question.—Generally do you think that it is in the national interest that we should depend on imported sources of supply?

Answer.—It is not in the national interest. If there are figures to show that the available quantity of coal in the country will not meet coal requirement on further industrialisation of the country, then only may this be resorted to. Otherwise, from the national point of view, if there is a surplus of coal, we would not like to go in for foreign fuel.

Question.—We are informed that the Ahmedabad Electric Supply Co. is more or less doubling its power generation capacity. Has that plan been laid down after consultation with your Association?

Answer.—Not after consultation. But during war-time when they could not get power plants so many mills applied for power at any price.

That is why the Electricity Co. are planning an increase in capacity.

Question.—What is your idea about the mills drawing their power from a Central Electricity generating plant?

Answer.—Unless it is a hydraulic electricity, the cost would be more than if we had our own generating plant.

Question.—In Lahore we were told that thermal electricity can be generated almost as cheap as hydro-electricity.

Answer.—If that is so, our electric rates are prohibitive. I would request you to go into the question of electricity rates in Ahmedabad and try to reduce the present rates, because they are much higher than in Bombay. We are just preparing a representation on that. If the rates are reduced probably more mills will take to electrical energy.

Question.—Even if you have own generating station you would still require some coal. Am I correct in assuming that 35% of the present consumption will still be required?

Answer.—Yes, it will be required. In the case of oil we do not want any coal at all. In the case of connection of electrical energy we require it.

Question.—Normally what would you consider a safe margin for carrying stocks in a textile mill?

Answer.—Normally we maintain one month's stock. In ordinary times it is a safe margin.

Question.—In Cawnpore they used to carry three to four months' stock. Can you take stocks for that period or more?

Answer.—I do not think we can take stock for more than three months. Up to three months we can accommodate.

Question.—Have you got anything to add?

Answer.—Yes. We should like to have exclusive monopoly of C.P. and C.I. coal for Ahmedabad.

Question.—Do you mean by 'monopoly' preference of supply?

Answer.—Exclusive monopoly means we should be the first buyers of C.P. and C.I. coal. Then the freight rates should be adjusted in consultation with us. We think, too, that the present transport facilities for coal are not satisfactory. Agra East Bank is the chief bottleneck for the wagons coming in on the metre gauge side. There are several mills in Gujrat. They are always short of coal because wagons cannot be transferred from broad gauge to metre gauge at Agra East Bank. At Kandwa also there is difficulty, but Agra is the worst compared to others. Wherever—Ujjain, Kandwa or Agra—it is transferred from board gauge to metre, the work is poor and the labour is not proper.

49 WRITTEN EVIDENCE SENT IN BY INDIAN MINE MANAGERS' ASSOCIATION.

QUESTIONNAIRE I.

PART I.—GENERAL.

We consider that adequate control by the State over first workings, working seams in sections, depillaring etc. is necessary as the conditions which impressed The Coalfields Committee 1920 and The Coal Mining Committee, 1937 to recommend State control for the above still prevails.

So far as the control of the first workings and working of seams in sections, isolation of workings, dimensions and positions of barriers and measures to extinguish fires are concerned, the present powers vested in the Department of Mines under the Indian Mines Act and Regulations etc. are, in our opinion, sufficient to exercise the necessary control.

For depillaring operations in all seams containing coal of metallurgical variety and in all seams 6 ft. and over in thickness and in seams liable to spontaneous combustion, complete stowing should be made compulsory.

For rotation of workings, we are of opinion that the depillaring of bottom seams which is likely to destroy, damage or render unworkable top seams (of at least 3 ft. in thickness) should be prohibited unless and until it is completely stowed.

Where a seam is worked in sections, compulsory stowing must be enforced during depillaring to ensure complete extraction of the full thickness of the seam.

We strongly advocate that from the point of view of conservation of coal, stowing in all forms should be encouraged. To meet this end in view and to make it universally applicable, sand or other materials suitable for hydraulic stowing should be delivered free of cost at the colliery site. In the event of this not being possible, full assistance should be given to collieries undertaking voluntary stowing with local materials.

So far as the adjustment of boundaries, exchange of areas etc., it is our considered opinion that a Statutory Board should be constituted to deal with these problems and in general to deal with all disputes between neighbouring collieries and of Royalty-receivers and tenants, consisting of a high Judicial Officer, representatives of the colliery owners, Royalty-receivers and experienced Mining Engineers.

PART II.—GRADING AND EXPORTS.

Q. 2.—With a view to conservation, no coal of metallurgical variety should be exported now or in future. Regarding other classes of coal, as the internal needs of the country are much more than what is being produced at present, and there being no chance of the production meeting the full demand in the near future, the

question of export of coal to outside countries does not arise at present.

Qs. 7 & 8.—No grading of coal is necessary for internal markets and the consumers are to be left to choose their coal according to their own needs.

PART IV.—RAILWAY FACILITIES.

Q. 13.—The railway facilities existing at present in respect of wagons track, power and siding are considered to be *absolutely inadequate* to cope with the movement of coal, especially in the Bengal and Bihar coalfields. The remedial measures suggested are as follows :—

- (a) The number of railway engines and wagons should be sufficiently increased.
- (b) To avoid congestion and obstruction to free movement of coal wagons both loads and empties, important areas in the coalfields should be independently linked to the respective railway weigh-bridges.

Q. 14.—No change in the existing system of supplying wagons is considered necessary.

Q. 8.—The arrangement of granting siding accommodations to collieries are very unsatisfactory, in the sense that they are sometimes unreasonably delayed or refused in many cases. With a view to the granting of new siding accommodations or the extension of existing ones with reasonable dispatch, we advocate the constitution of a Statutory Body composed of Government and Railway Experts and the technical experts of the coal trade.

Q. 19.—The present complaints about under-loading and overloading of coal wagons can be minimised to a great extent if the system of assessing under loading and overloading that was in operation prior to 1940, should immediately be reverted to and arrangements should be made to provide series of weigh-bridges to serve different sections of each coalfield with facilities provided for the collieries at the weigh-bridge yards to readjust the weights in wagons despatched by them, if necessary.

Q. 21.—The freight rates of coal produced and despatched from different collieries of the *Runi-ganj Coalfield* should be uniform.

Q. 28.—It is the present practice in the collieries to lay the rails upto the working face or as near it, as possible, as it saves some cost of extra lead and time and increases the efficiency of the coal cutter.

PART VII.—STOWING.

Q. 31.—The measure of success has attended the operations of Coal Mines Stowing Board is partial. For other points we beg to refer to our answers in the general questions.

PART VIII.—MISCELLANEOUS.

Q. 33.—The acquisition of surface lands for colliery purposes in the normal way is a very complicated one and is always attended with unusual delays and litigation. To obviate this, it is suggested that a law should be promulgated (if possible, by suitably amending the present Act) to facilitate the summary acquisition and possession of surface rights over lands required for colliery purpose on the recommendation of the Chief Inspector of Mines in India to the Land Acquisition Officer concerned.

Q. 34.—For better utilisation of small coals, briquetting of coal is desirable.

Q. 35.—Washing of coal in this country is in an experimental state and the results are not known to the public. We agree that coal washing will improve the quality of coal by eliminating the heavy impurities, as a result of which it is expected to fetch a better price and will assist in better utilisation of lower grade coals.

Q. 39.—Educational facilities for colliery employees and their children are practically non-existent. It is strongly advocated that free primary and adult education with State assistance should be made available with immediate effect.

Q. 40.—With a view to induce the present migratory coalfields labour to become settled mining community, approved labour homes should be immediately built on the colliery premises with facilities of lands for cultivation and garden and other home amenities.

Questionnaire II.

PART I.—CONSTITUTIONAL.

As the system of dual control by the Central and Provincial Governments in respect of regulation of mines and mineral development leads to unnecessary complication, we are in favour of the creation of a Central Government Department under a Member of His Excellency the Viceroy's Executive Council assisted by a Statutory Board to be constituted for the purpose to deal with all questions relating to minerals and mines including coal.

PART II.—ECONOMICS OF THE COAL INDUSTRY.

Structural Organisation of the Industry.

Q. 3.—The structure of the units of production in the coal industry as outlined in the Question 3 is not unsatisfactory so far as production only of coal is concerned.

Q. 4.—The system of Managing Agents is considered to be still necessary for further development of the Indian Coal Industry.

Q. 5.—The type of close alliance between the units of coal production and consuming interests especially in the case of Iron and Steel Companies, Cement Works, Paper Mills, Refractory Works, etc. as exists at present, has been found to be very undesirable. The consuming interests of such companies, as aforesaid, being more vital than their producing interests, it is an established practice with them to offer their own coal for sale at uneconomic prices with a view to purchase their heavy requirements from the market at very cheap prices. Such unhealthy factor of forcing down the coal market to uneconomic levels by such companies, as aforesaid, had always a detrimental effect on wagons in the coal industry and the standard of living of the labourers, in general.

Q. 6.—The owning and operating of their own collieries by the State Railways had always a retarding influence on private enterprises in the coal industry for the following reasons :—

- (i) The Railways are very conveniently placed with regard to Siding and Yard facilities.
- (ii) Adequate and regular supply of wagons and the distribution of same are always controlled by them according to their needs and convenience.
- (iii) The Railways are specially privileged to utilise their output irrespective of the quality of coal produced and cost of production.
- (iv) The coal purchase policy pursued by the Railways in the past has always contributed to the lowering of prices of coal to uneconomic levels as a result of the unhealthy competition encouraged by them in the coal trade.

Ownership and Management.

Qs. 7 & 8.—We do not consider that any drastic change in the existing structure of ownership and management is desirable or called for at the present moment. It has been proved beyond any measure of doubt that the contribution of the private ownership and enterprise in the coal industry to meet the needs of the country during the critical periods of war had been considerable.

Q. 9.—In this connection, we beg to refer to the concluding paragraph of the answer given by us to Part I of Questionnaire I. We have advocated therein the establishment of Statutory Board to deal with problems relating to the adjustment of boundaries, the exchange of areas, preparation and introduction of standard forms of leases and in general to deal with all disputes between neighbouring collieries and Royalty Receivers and tenants, and employers and employees of coal mines. The aforesaid Board should consist of a High Judicial Officer (preferably High Court Judge), Representative of Colliery Owners, Royalty Receivers and experienced Mining Engineers.

Question 10.—Whilst we are definitely of the opinion that the system of private ownership and enterprise, as at present, should continue, we strongly advocate that the State must exercise effective control over production, distribution and marketing of coal as is in operation now.

Production

Question 13.—It is not possible to answer from an Association.

Question 14.—We suggest the following remedies for improving the output per head of Indian Coal Mining Labour :—

- (i) Introduction of total prohibition by abolishing all grog and country liquor shops from the coal fields.
- (ii) Removal of illiteracy by introducing free primary and adult education including practical instruction in safety measures in mines and training in disciplinary habits.
- (iii) Raising the standard of living by creating a taste for better type of food consisting of balanced and nutritive diet, better clothing and housing.
- (iv) Educating labour to learn thrifty habits to provide for sickness and old age.
- (v) Regular and adequate supply of wagons of the quick disposal of output which has a direct bearing on the output per head of labour.

Question 15.—The system of coal raising Contractors tends to improve output and in our opinion this system alone is not responsible for the unsystematic mining methods.

Question 16.—The transport position during the period of war was very unsatisfactory but it has become so worse during the past few months that it has become the main obstacle for the production of coal. The anticipated discrepancy of about 6 million tons between the coal requirements of the country and the coal production of the next two years or so, in our opinion, can be made up if the following suggestions are immediately given effect to :—

- (i) Assured and regular supply of wagons to transport every ounce of the anticipated increased output.
- (ii) Affording siding facilities to collieries, whenever asked for.
- (iii) Expeditious supply of machineries, plant and stores.
- (iv) Supply of electrical energy to mines, wherever possible.
- (v) Continuance of the supply of outside labour by Government agency for the coalfields.
- (vi) Introduction of open cut coal mining methods with the aid of modern machineries wherever practicable in new fields and continued development of the existing ones.

Question 17.—Although the system of price fixation and distribution under Government Control as at present, has given a definite fillip to the coal mining industry, a Central Marketing Agency for coal under Government aegis may be given a trial with a view to explore avenues for rapid expansion of the present coal market throughout the length and breadth of this country as also for the better utilisation of all classes of coal. It may be stressed in this connection, that on account of very high prices of wood fuels prevailing in almost all towns and villages situated at a distance from the coalfields, we consider that the time has come when every effort should be made to introduce the use of soft coke as domestic fuel throughout country. If the suggested Central Marketing Agency can tackle this problem successfully, we are definitely of the opinion that the future of the inferior grades of coal particularly of the Jharia coalfield is assured for several years to come.

We are not in favour of any regional or zonal groupings under the Marketing schemes.

Question 18.—We advocate the complete regulation of the use of different coals for different purposes. Although such regulation of the use of different coals as is being practised now may be continued, the final complete regulation will depend on the results obtained by the extensive researches that will have to be undertaken in this direction by the Fuel Research Institute.

Question 19.—Does not arise.

Question 20.—The primary responsibility for the supply of correct coal from a colliery should rest with the colliery itself but sufficient check should be administered by the Distribution Department of the Government who should also have a joint responsibility.

Question 21.—The present day market demands of coal are of the following varieties :—

- | | |
|------------------------|---|
| (i) Steam coal | Any coal that passes over a screen of 1" mesh. |
| (ii) Slack coal | Any coal which passes through a screen of 1" mesh. |
| (iii) Run of mine coal | Any coal that is raised from the mine being generally mixture of steam and slack coals. |

Transport

Question 28.—We agree that if there is a common pool of wagons for the East Indian Railway and Bengal Nagpur Railway operated by the Central Body, the distribution of available wagons will be not only efficient but also much more equitable throughout the coalfields.

Price and Profits

Question 29.—We consider that return to free competition, so far as the price of coal is concerned is undesirable. In our opinion the trade will not be in a position to work out on a voluntary basis, a system of fixed prices for different grades of coal as suggested in the question. It is our considered opinion that the Government should have the power to fix prices either directly as is being done at present or through Central Marketing Agency under Government aegis.

Question 30.—We are of the opinion that the prices of all classes of coal for all consumers should be fixed by Government for achieving a stable condition in the industry.

Question 31.—The fixation of prices of coal by Government as advocated by us may be done by the Coal Marketing Agency under Government aegis or a Price Control Board wherein the producing and consuming interests should have adequate representation.

Question 32.—The difference in the price f.o.r. colliery between the different grades of coal in relation to the existing prices as classified under the present Colliery Control Order, seems to be fair.

Question 34.—The middleman's commission as fixed under the Colliery Control Order is in our opinion not unfair.

Taxation

Question 35.—The coal industry is subjected to multiple cesses and taxation which are unduly heavy compared to other industries in this country e.g., the road and public work cess and Mines Board's cess which are levied only to the coal mining industry. Moreover, the aforesaid road and public work cess which are levied in excess of the other industries are not even allowed to be charged under revenue account while computing profits for income tax assessment purposes. Such unfair assessment should be removed. Moreover, coal being a wasting asset, it is considered reasonable that a fair amount of depreciation should be allowed as is being done in the case of the principal assets of other industries.

National and International Commercial Policies

Question 36.—We consider that special provisions may be made in international treaties and trade agreements to safeguard the natural export markets exclusively for lower grades of Indian coal i.e., from grade II downwards.

We consider that the markets are as follows :—

- (i) Burma.
- (ii) Malaya.
- (iii) Thailand.
- (iv) French Indo-China.
- (v) Dutch East Indies.
- (vi) China.

Question 37.—We consider that the effect on the industry generally of the implementing by India of international convention in respect of colliery labour has been wholesome.

PART III

Conservation of High Grade Metallurgical Coal

Question 38.—Metallurgical coal may be defined as the coal of a character which on destructive distillation yields a hard coke of fine porous texture, low ash content, a silvery appearance, strength (hardness and toughness) to resist crushing and capable of producing high heat for a long period.

The known deposit of metallurgical coal are 9 to 19 seams in Jharia, Laikdih, Ramnagore, Begunia, Dishergarh, Sanctoria, Salanpur B and D seams and Kasta seams of Raniganj, Shampur seam of Mugma, Khurharbaree seam of Giridih, Kargali seam of Bokharo, Jairangdih-Sirka seams of West Bokharo and Jainty seam of Jainty coalfields.

Question 43.—(a) The requirements of metallurgical coal of the country can be considerably reduced if such coal can be satisfactorily blended with coals of other varieties. This question being of vital national importance, researches in this direction should be extensively carried out if not already taken in hand by the Fuel Research Institute.

(b) Low grade cooking coals which are considered unsuitable for the manufacture of hard coke used for metallurgical purposes can in many cases be made suitable by resorting to washing, eliminating a great percentage of impurities thereby. We consider such coals, as aforesaid, can be further successfully utilised by blending a small percentage high grade metallurgical coal with it.

Blending and washing are still in an experimental stage.

Question 44.—It is difficult to answer the first part of the question. With a view to better economy in coal consumption and the recovery of all bye-products, it is desirable to initiate a study of proper utilisation and consumption of coal in the Iron and Steel Works.

Question 45.—In view of the very serious depletion of the known limited metallurgical coal reserves in this country, the available quantity of which being considered insufficient to meet the country's demand for its iron, steel and other metallurgical industries for a long period, we are strongly of the opinion that all metallurgical coals should be conserved as far as practicable and its use should be strictly limited to the needs of the metallurgical industries.

Question 46.—Assuming that the production of steel in this country will expand to, say, ten million tons in the next fifteen years, we consider that the restriction of the use of metallurgical coal for metallurgical purposes only should be enforced now, with a view to proper utilisation and ultimate conservation.

Question 47.—As the restriction is considered necessary we suggest that the collieries mining metallurgical coal should be earmarked for despatching their entire output to metallurgical industries only.

Question 48.—If the assumption made in question 46 viz., that the Steel industry will expand to an output of ten million tons per annum, becomes a fact, the requirement of metallurgical coal in that circumstances will be about fifteen million tons per annum. This means that instead of apprehended reduction, the output has got to be increased. Even if, it is assumed that due to the restriction on the use of the metallurgical coal the output of such coal has to be reduced, we suggest that the loss suffered by the collieries mining such coal due to the aforesaid forced restriction in output, may be made up by proportionate increase in the price of coal.

Question 49.—We do not consider it desirable that the State should own and/or operate metallurgical coal.

PART IV

Conservation of High Grade Steam Coal

Question 50.—All coals classified as selected grades as per Coal Grading Board's specification may be considered as high grade steam coal. The known deposits of such coal are Dishergarh, Poniati, Sanctoria, Begunia and Ghusick seams of Raniganj, Huntodih, Pipratand, Bhurungia in Jharia, Ghoramaria and Damua seams in Central Provinces coalfields. In addition to the above there are several seams of this variety in the Korea and Rewa State and in Assam.

Question 51 & 52.—High grade steam coal in this country has, in our opinion, been misused. We suggest that this coal should be used only where steam has to be generated, maintained and used at high pressures, and restrictions in its use may be enforced from now. The needs of the country so far as this particular variety of coal is concerned i.e. in Jute and Cotton Mills, Electric Supply Corporations, Water Works etc. should be assessed and the total requirements may be obtained from collieries mining such coal by allotting equitable quotas to all of them.

Question 53.—Does not arise.

PART V

Conservation Generally

Question 54.—The present percentage of maximum extraction of coal after depillaring of a seam is now about 70%. The position has considerably improved during recent years due to strict enforcement of the Regulations under the Indian Mines Act, regarding restricted first working and section working, more systematic methods of depillaring assisted by stowing in many cases.

Question 55.—Regarding first working, section working and depillaring the existing mining regulations are considered to be adequate but in our opinion the maximum percentage of extrac-

tion can be very much enhanced if stowing in some forms is made universally applicable. To attain this end in view, sand or other suitable stowing material should be delivered free of cost to the collieries undertaking depillaring. Where supply of sand is not an economic proposition stowing with local materials should be encouraged and complete assistance should be given.

Question 56.—We agree with the Recommendation of the Coal Mining Committee, 1937 that rotation of workings should be controlled and as such we suggest that the depillaring of bottom seams which is likely to destroy, damage or render unworkable top seams (of at least 3 ft. in thickness) should be prohibited unless and until it is completely stowed.

Where a seam is thick and is worked in sections, compulsory stowing must be enforced during depillaring to ensure maximum extraction of the full thickness of the seam.

Question 57.—We advocate stowing not only for safety but also for conservation purposes and as such it should be made applicable to all metallurgical and high grade steam coal seams as also to thick seams liable to spontaneous combustion. In all cases where stowing is resorted to full assistance should be given either in the form of supplying sand or other suitable stowing materials free of cost at the site or monetary assistance to cover the cost of securing local materials and transporting same to the site.

Question 58.—In our opinion, the Government should undertake the work of delivering sand for stowing and it is considered necessary that the sand rights should be acquired by the Government, as these will lead to one unified central control, simplified and efficient planning and management and absence of litigation. The proposition mentioned above will interfere with the existing arrangements to a certain extent but by suitable adjustments between the parties concerned and the Government, these difficulties can be properly solved.

Question 59.—If stowing is made universally applicable, the interests of the lessors are better safeguarded and they will be benefitted on account of higher percentage of extraction. As such the lessors should be made to contribute a reasonable proportion of the cost of stowing commensurate with their royalty rates, payable in the form of a cess on royalty income.

Question 61.—There have not been any great developments regarding economy and efficiency in coal consumption by the use of (a) pulverised coal and (b) colloidal fuel. These should be considered by the Fuel Research Institute.

Question 62.—Our views generally are that the installation of power station in the coalfields is desirable for the following reasons :—

- (i) Greater utilisation of low grade coals.
- (ii) Affording relief to the already serious wagon position.
- (iii) Supply of cheap electricity all the way to Calcutta and beyond.

- (iv) Development of cottage and other industries.

One of the suitable sites in our opinion is the area between Ondal Railway Station and the River Damodar.

Question 63.—In the present methods of production of Soft Coke although lower grades of coal are only used, much remains to be done so far as the recovery of bye-products is concerned. The results of the researches carried out by Fuel Research Institute will go a great way in determining future methods of production of Soft Coke.

Question 64.—We advocate the development of coal-tar industry in India with a view to greater utilisation of low grade high volatile coals and also to obtain petroleum and other derivatives which are now insufficient in this country.

PART VI

Mining Leases and Fragmentation

Question 66.—The difficulties arising out of the leases containing no provisions for “in stroke” and “out stroke” working are experienced where areas could be profitably worked after adjustment of boundaries of two properties, on account of irregularities, presence of faults and dykes or for any other reason. The absence of these vital clause has led in many instances to the ultimate loss of the coal in the entire area. This clause should be deemed to contain in all mining leases whether specifically mentioned or not.

Question 68.—The Statutory Board advocated by us elsewhere to deal with all disputes between neighbouring collieries and between colliery owners and royalty receivers may be empowered to deal with this matter in conjunction with the colliery owners and the royalty receivers.

Question 69.—It is difficult to define an uneconomic colliery holding as all colliery holdings big or small are known to be economic ones now-a-days. The extent of such holdings, if any, are not known to us. Fragmentation of holdings are, in our opinion, the outcome of sub-leases in various stages after the original lease.

Question 70.—If by uneconomic colliery holdings, collieries with small areas are indicated, we are strongly of the opinion that their existence is desirable in the national interest.

Question 71.—As it is not practicable to lay down any standard size of a proper economic colliery holding we are not in favour of the enactment of any legislation in that connection.

PART VII

Opening of New Coalfields.

Question 72.—There are some unexploited or partially exploited deposits of coal. These are :—

- (i) The Eastern portion of Raniganj Coalfield about 65 square miles in area and is proved to contain Kajora, Jambad, Banbahal, Chora and Bamla seams

- (ii) Kasta section of Raniganj Coalfield which is about 90 square miles in area and is known to contain higher grade seams.

- (iii) North and South of Karanpura field.

- (iv) Central Indian Coalfields.

These fields are more or less unexploited due to lack of transport facilities.

PART VIII

Administrative Measures

Question 73.—We are of the opinion that all cesses, Central and Provincial, which are now payable in respect of coal should be levied and collected through one Central Government Department in charge of an Hon'ble Member for Coal and Minerals.

Question 74.—We advocate the establishment of a Central Board to exercise the functions of all the different Committees and Boards now set up to be composed of the Hon'ble Member for coal and minerals and other members representing Government, the Coal Trade, the Royalty Receivers and Mining Engineers.

Question 75.—We consider that the multiplicity of bodies dealing with utility and health services in the coalfields should be unified.

ORAL EVIDENCE OF MESSRS. S. N. MULLICK AND A. N. MITTER REPRESENTING THE INDIAN MINE MANAGERS' ASSOCIATION.

Question.—Could you tell us something about the representative character of your Association, the composition, membership, etc. ?

Answer.—We have now about 285 members who are distributed all over British India. Members have to be first-class or second-class certificated colliery managers. Most of the members are in the principal coalfields, Jharia, Raniganj etc.

Question.—Apart from the question of stowing are the present regulations of depillaring satisfactory or do they need any amendment ?

Answer.—We have said that when seams are one above the other if you start depillaring in one there is nothing to prevent depillaring coming from the bottom which will be dangerous to the top seams. That should be controlled.

Question.—Is it your opinion that a sort of orderly sequence of extraction of the seams should be enforced in all cases ?

Answer.—Yes. Provided no stowing is available or resorted to.

Question.—If stowing is available then the extraction of the upper seams may be permitted ?

Answer.—Yes.

Question.—In regard to the question of rotation of working do I understand you correctly to say that this rotation of working in an area is not necessary if stowing is made compulsory ?

Answer.—That is right.

Question.—On question 2, you have suggested that the question of export of coal to outside countries does not arise in view of the present shortage of coal. But in Questionnaire II in para 36 you have advocated that trade agreements should safeguard the natural export markets exclusively for lower grades of Indian Coal from grade II downwards. Are you in a position to say whether the natural markets you have specified will be able to take or will be willing to take grade II coal in preference to coal from other countries?

Answer.—The idea while arriving at this conclusion was if it is at all possible to introduce this quality of coal in other countries it should be done. But as you suggested just now when the market comes back to the normal and free competition comes in, naturally these countries will have preference for better class coal if available than the one we can offer to them.

Question.—Regarding questions 7 and 8, you have suggested here that no grading of coal is necessary for internal markets. In question 18 of Questionnaire II you have advocated the complete regulation of the use of different coals for different purposes. How do you reconcile these two statements ? You have very correctly stated that the regulation of the use of coal involves extensive researches into the qualities of our coals which is nothing else but an extension of the present research system on more scientific lines.

Answer.—Yes. While answering that we had in view the method that is in vogue now for grading our coal for external markets. What we wanted to drive at is, as we have stated in answer to question 18, that a more scientific method should be used in arriving at the grade of a particular coal so that the seam in its entirety may be analysed as far as possible.

Question.—From the point of view of production?

Answer.—Yes.

Question.—Then regulating the use of coal for specific industries is an aspect of distribution?

Answer.—Yes.

Question.—As regards weigh-bridges, is it your opinion that the present railway weigh-bridges are not adequate to serve the purpose which we have in mind ?

Answer.—A wagon which is drawn out of a colliery has to wait at the weigh-bridge for five or six days for weighment. The wagons are detained continuously and not moved.

Question.—What is the reason for this sort of delay ?

Answer.—Might be inadequate facilities for the shunting rds or other bottle-necks.

Question.—Have you any suggestions to make in respect of evening out production in the coalfields over a certain period ?

Answer.—The trouble is the migratory character of the labour in the coalfields and the one suggestion that can be made is to have a settled labour force in the coalfields.

Question.—In regard to loading programme, do you think collieries should work to a 6-day loading programme or a 7-day programme.

Answer.—They are working to a 7-day programme now. But 6-day loading is certainly preferable. This will give the labour one day for rest, but things being as they are to-day, we have to load on all seven days. There is also the question of erratic supply of wagons.

Question.—We have put to you this suggestion that the immediate future requirements will be 32 million tons of which 28 million tons will, of necessity, come from Bengal/Bihar. Do you think there are any very serious difficulties in increasing production in these two fields ?

Answer.—We do not envisage any serious difficulty in stepping up production, because there are so many tracts that have not been touched so far and there are lots of collieries being opened up now-a-days. If adequate facilities are given to them to work, such as sidings, machinery, plant and other things, to have 4 million tons more is not a very serious trouble.

Question.—Apart from opening new coalfields, what chances are there if stepping up production in existing collieries ?

Answer.—The question boils down to some form of stowing. If we can get the benefit of stowing, certainly we can expect appreciable increase in production.

Question.—Do you envisage greater use of mechanical methods or do you think this increased production can be obtained by increasing manual output ?

Answer.—By both.

Question.—Is it not a fact that mechanical methods might lead to increased production at a rapid rate ?

Answer.—Machines would, of course, give the best results. Lack of proper machinery, lack of trained men, lack of men for maintaining the machines properly, these are the greatest obstacles for machine mining in India, and it is costlier too in proportion to pick miners.

Question.—Do you consider that there should be prescribed a minimum output from a colliery to entitle it to a siding ?

Answer.—Yes, a minimum of 2 wagons per day. Siding facilities should be given to one and all, certainly. Every colliery should be given that opportunity to open up readily.

Question.—Is it your suggestion that every colliery no matter how small and how irregular its output is, is entitled to receiving siding facilities ?

Answer.—The same question applies to all. If you put any conditions e.g., that a colliery which is not in a position to raise say 500 or 1,000 tons per month, some may not get facilities. Suppose a colliery satisfies that condition and you permit that colliery to have a siding and you open that siding and if that colliery is lacking in coal?

Question.—What about the weigh-bridges? There has been a suggestion before us that the rebate given on the installation of private weigh-bridges should be reinstated. Should there be a minimum prerequisite in respect of output or should this rebate be granted irrespective of tonnage production by a colliery?

Answer.—It will be fair and equitable to have a rebate on tonnage basis.

Question.—Could you prescribe any minimum for the output before a colliery becomes eligible to the rebate? Surely the installation of private weigh-bridges involves considerable realignment of the lines and alterations in the sidings and considerable expenditure is incurred by the Railways. Thus encouragement is given to private collieries to instal their own weigh-bridges. You are asking not only that this expenditure be incurred by the Railways but that they should also give a concession of 1 anna per ton?

Answer.—The cost of the weigh-bridges provided by Railways is being recouped by them in due course. I do not think smaller collieries will be in a position to instal private weigh-bridges. So the best thing would be, I think, to 'pool' small collieries in respect of using weigh-bridges.

Question.—From another angle you do not consider another element of waste to-day which could be rectified by suitable action—waste in the use of stores.

Answer.—Very little stores now-a-days are wasted.

Question.—What is your opinion in regard to the education imparted in the coalfields area? It has been suggested that increased educational facilities for miners' children would mean that these children would no longer be content to stay as miners but would go away to other occupations?

Answer.—That is a presumption, but what will happen actually remains to be seen. In other countries miners have a good bit of education, but still they stick to their job, because they find it better to stick to their job than go elsewhere. They get better pay in the coal industry than they would get elsewhere.

Question.—In your opinion educational facilities should be increased?

Answer.—Definitely.

Question.—An allegation has been made that the standard of education given in the Dhanbad School is not up to the mark, particularly that the boys turned out there, lack "practical turn of mind" and prove unsatisfactory as mines managers. What is your view?

Answer.—So far as theoretical knowledge imparted there is concerned, I think, it is quite adequate. My personal opinion about practical experience is this: As soon as the boys come out of the school they get perhaps swollen-headed and they don't think they should go through the procedures.

Question.—What is your suggestion for the improvement of this state of affairs?

Answer.—We cannot force students to go through every bit of experience. There is a prescribed number of years to get practical experience. It is upto the student to decide whether to go through the practical experience or whether just to count the days and get the certificate. It is upto them to take a decision.

Question.—We are going in for a rapid expansion of the coal industry and it is believed that the number of qualified and dependable managers is not quite what it should be having regard to the future requirements of the industry. Do you agree with that view?

Answer.—The number of students that get out after qualifying for certificated examination is less than what it should be according to the demand.

Question.—What is your experience in respect of the general run of Managing Agency administration of their respective coal units?

Answer.—Generally speaking, there is very little to be complained so far as Managing Agencies are concerned. It is only the intermediaries who sometimes do not function properly.

Question.—By intermediaries, you mean the people appointed by the Managing Agencies to administer the colliery?

Answer.—Yes, over the technical staff.

Question.—Is it not the position to-day that the Zamindars are interested in their property containing coal only to the extent of receiving royalties and nothing else. They take no interest in seeing whether the covenants of the leases are properly carried out, they do not see whether the various terms mentioned in the leases are fulfilled or not, they do not have technical staff and no periodical inspection of the properties.

Answer.—There are technical people who supervise on behalf of the land-holders or the royalty receivers. But even in spite of their having certain conditions in the leases about enforcing those conditions they can't utilise them because it drags them into the court.

Question.—Assuming there are certain defects of working and under a planned system of production they are asked to rectify those defects and they are either unwilling or unable to rectify those defects.

Do you think there is a case then for acquisition of the mineral rights by the State, as long as they are safeguarded in the matter of royalties from their property?

Answer.—There is a case certainly, but what I feel is how can you distinguish the position of a

landlord and mine owner so far as the ownership of mineral right is concerned.

Question.—Alongside the acquisition of mineral rights by the State may also go power to adjust old leases.

Answer.—That can be done by introducing legislation. We have recommended the appointment of a Statutory Authority which could go into this question and if they like they can have certain legislation passed.

Question.—You have stated in question 38, that the known deposits of metallurgical coal are 9 to 19 seams in Jharia. Do you consider that seams 9, 10 and 11 really belong to the variety of metallurgical coal as their ash contents are over 25%?

Answer.—So far as our information goes, in certain collieries, 9, 10 and 11 seams have been proved to satisfy the conditions of metallurgical coal. But in other cases, I think the quality of that coal, so far as ash percentage is concerned, can be very much improved by treatment.

Question.—You have expressed yourself as opposed to the State owning or operating metallurgical coal. You have advocated the complete stoppage of exports of metallurgical coal. You have further advocated complete regulation of the use of coal for specific purposes. That will involve confining the use of metallurgical coal to the use of the steel industry only. The offtake of such coal by that industry does not today exceed 3 million tons as against the output of 8 to 10 million tons of metallurgical coal. If we were to follow your recommendations, it may mean a very drastic curtailment in production of various collieries. It may also mean shutting down certain collieries. As technical men could you tell us whether there are any very great technical difficulties in curtailing the output of such collieries as are producing metallurgical coal?

Answer.—Within our experience, we had once or twice to curtail our raisings for a considerable time. There is no serious difficulty about doing that. About stoppage of mining, we have got to keep in mind the high cost that will be involved before raisings can be started again. Our idea is that if it is at all necessary to curtail the raisings to meet the present-day requirements of metallurgical coal, we could proportionately reduce the output from the collieries. Until more steel works are started, in the interim period, we can have the output reduced to the needs of our industry and that should be done equitably and that means some sort of compensation being fixed.

Question.—Some collieries may also have to be closed down.

Answer.—If they are compensated so far as their loss is concerned, I do not see any reason why they should not shut down.

Question.—But there may be differences of opinion about the basis of compensation and collieries may prefer to sell out. Is n't there a case for going a bit further and acquiring those properties?

Answer.—We do not see how the intervention of the State helps in the matter.

Question.—Somebody has to be responsible.

Answer.—The trade should pay, i.e. steel industry.

Question.—Do you think it is possible to work out a system of priorities in the matter of stowing field by field?

Answer.—Priorities field by field, I think is not practicable. Because in one field, say two or three collieries may be in a position to start depillaring immediately but in other collieries they may be opening just then and may not require the help of stowing.

Question.—But you know the position of Jharia and Raniganj and in these two fields there are certain pressing demands for stowing. So looking at the condition of the collieries already opened up which require stowing, do you think we should give preference to any in order of priorities?

Answer.—I think some sort of priorities is being worked now. Priority should be given to all metallurgical and high grade coal.

Question.—Have you any observations to make regarding supply of electricity to collieries?

Answer.—In the eastern portion of Raniganj coalfield, about a year and a half back we were given to understand that electric energy would be made available. So all these collieries in the Jambad-Bijora area had applied for terms and other necessary formalities. But it has not made any headway up-till now.

Question.—Is there need for increase of electric supply?

Answer.—Definitely, very much.

Question.—You have stated that in your opinion the existence of collieries of small areas is desirable in the national interest. I should like to ask you to elucidate this a little bit further.

Answer.—It is our opinion that accidents in bigger mines are more frequent than in smaller ones. Take for instance these unfortunate explosions that have occurred in these coalfields.

Question.—From the point of safety small holdings are better?

Answer.—Yes. The smaller colliery areas can be supervised much more efficiently. Further as an aftermath of fire and explosions, you have got to close down completely for a considerable period, even for years. That means that a bigger unit of 3 or 4 thousand bighas, after an explosion or fire will have to be kept closed for 2 or 3 years and so coal output falls.

50. WRITTEN EVIDENCE SENT IN BY THE NATIONAL ASSOCIATION OF COLLIERY MANAGERS' (INDIAN BRANCH).

QUESTIONNAIRE I.

SECTION I.

General.

1(a) We consider that regarding items 1, 2, 6, 7, & 9 enumerated on page 1 of the Questionnaire, conditions which impressed the two previous Committees still prevail.

(b) More power should be given to the Mines Department to control or prohibit depillaring in shallow seams.

Regarding the Coal Mines stowing Board we consider that although the Board is advised by a Technical Committee the Board should be altered to include more technical personnel. We feel that the Board should have more actively prepared a long term stowing policy.

We consider that the establishment of a statutory Authority on the lines suggested by the 1937 Committee would be of advantage to consider item 1 & 2.

SECTION III.

Nil.

SECTION IV.

Railway Facilities.

(13) We consider that railway facilities are hopelessly inadequate and suggest that to move this quantity of coal considerable improvement should be made in the present rolling stock position, the track, marshalling yards, personnel and main junctions.

(14) We consider that a colliery should be supplied with sufficient wagons to provide 24 hours working of the Colliery.

(15) Our opinion is that coal should be loaded on six days only and Sunday loading abolished. If adequate daily allotment is made this can be done.

(16) Practically none. We support the installing of private weigh bridges at individual collieries.

(19) At present there are serious complaints in regard to overloading and underloading of wagons and installation of private weigh bridges will completely eliminate this complaint. Until this facility can be granted reversion to the old tolerance tonnage is highly desirable.

(20) All collieries fitted with mechanical Screening Plant should have 100% open wagons supplied.

SECTION V.

Raising Costs.

(24) Installation of mechanical coal cutters has replaced manual coal cutting by some extent. Whilst the installation of mechanical cutters increases the cost of coal into the tubs the general improvement in output reduces overall colliery cost.

It has not been possible to use coal cutters to their full capacity due to (a) irregular labour attendance and (b) lack of skilled personnel. General Developments in favour of mechanisation is desirable and possible under certain conditions.

(25) This is an obvious fact that there is some saving in work if rails are laid near to the face but our experience is that this does not give any increase in output per head.

SECTION VII.

Stowing.

(31) This question is answered to some extent in the concluding paragraphs of our answer—question No. 1.

We are not sufficiently acquainted with the operation of the coal Mines Stowing Board but certain collieries doing voluntary stowing have attained certain measures of success.

In our opinion collieries compelled to stow in order to successfully work coal should be fully compensated.

(32) Nil.

SECTION VIII.

Miscellaneous.

(33) Adequate power for acquisition of surface lands for Colliery purposes should be given to the Statutory Authority as suggested.

(35) We are not aware of any practical results on coal washing in India. Reference can be made to laboratory tests carried out at the School of Mines.

In general the washing of coal produces a more uniform and valuable product, with an increased cost of production.

(36) We give full support of the establishment of a Fuel Research Institute and would point out that the time has now come for the establishment of a Safety in Mines Research Board for India entirely separate from the Fuel Research Institute and under the control of the Industry itself.

(38) To the best of our knowledge rescue arrangements in the coalfields are adequate.

(39) Mining education facilities are provided at the Indian School of Mines at Dhanbad and at Sanctoria Technical School and at certain evening classes in the Coalfields.

Some individual collieries have small schools of their own and we suggest that Government should launch comprehensive schemes of compul-

sory primary education and more facilities for technical education should be provided.

We consider there is scope for the establishment of an Institution for the practical training of subordinate Mine Officials.

The present Mining Education Advisory Board should be given more power and its scope extended.

(40) We consider that to induce the present migratory Coalfields labour to become a settled mining community vastly improved living conditions should be provided.

QUESTIONNAIRE II.

I

CONSTITUTIONAL

(1) and (2). In our opinion there should be created a Ministry of Mines, Fuel, and Power under a Member of His Excellency the Viceroy's Executive Council.

This Ministry should have full control over the Production, Distribution and Conservation of all minerals and also full control over all mining Labour and Welfare Activities.

Such a Ministry would incorporate the existing Mines Department, Coal Commissioner's Department, Coal Mines Stowing Board, Coal Mines Welfare Commissioners Department and Coal Grading Board.

II.

Economics of the Coal Industry.

(3) We see nothing wrong with the system of Managing Agents provided the collieries which they control are run under skilled technical direction. There is a danger that directors with no knowledge may attempt to dictate a policy but this danger exists under any company structure and can only be satisfactorily combatted by a strong Association of Technical men.

The same argument can be used with privately owned collieries and collieries owned or controlled by consumer interests but we are of opinion that the many small privately owned properties which operate in the Raniganj and Jharia Coalfields are a menace to the well being of the Coal Industry.

The obvious alternative to the present system is complete nationalisation but this Association is not in a position to recommend such a drastic step.

(4) Managing Agents have not outlived their usefulness. Although in the past there have been glaring instances of too much control by non-technical man it is our opinion that this rarely occurs in this more enlightened age.

(5) It is our opinion that collieries operated by Iron & Steel Companies etc. are controlled in much the same way as collieries under the Managing Agency system.

They have in the past tended to pay higher wages than those generally paid in the industry and this, naturally, is a healthy factor.

(6) We feel that in quoting prices against the coal requirements of Indian Government Railways the market tended, in the pre-war years to be influenced by the apprehended (whether this was justified or not) that if prices were not at the lowest possible the Railways would not accept offers and would endeavour to expand their own outputs to obtain their requirements. The general effect was to depress the market.

We consider that the Railways should publish their pit head costs annually.

(7) Where private Leases have permitted the leaving unworked of inferior coals and subsequent damage by the extraction of good quality coals at greater depths we agree such Leases have caused the dissipation of coal resources.

We advocate acquisition by the State of all mineral rights.

(8) and (9) See 7 above.

(10) Private ownership by the larger units has resulted in whatever degree of progress and efficiency the industry now possesses.

State control over distribution and prices should guarantee the industry full off take and reasonable profits in which case private ownership of the mines would ensure continued progress and efficiency.

(13) There are divergences in the proportion of labour costs to pit head costs depending on the conditions (e.g. methods of working whether sand stowing is practised or not, amount of pumping etc.) at individual collieries.

We have obtained figures for different collieries and find that labour costs vary between 40% and 60% of the all-in pit head costs for each of the three years 1936, 1939 and 1945. There was a slight increase in the proportion during the period 1936-1945. We have not any figures for other countries.

(14) *Production.* If more coal is to be raised by the present mining force we must raise the standard of living of the miners. Co-operative shops (run in the first instance by the colliery owners) stocking all classes of consumer goods at reasonable prices should be inaugurated and maintained on all collieries so that the labour can spend their money on useful articles.

Demonstrations of the preparations of goods which are different from and more nourishing than the usual diet of rice, *atta* and dal should be a daily occurrence by Government sponsored demonstrators.

The eating of meat should be encouraged.

"Good living Missions" maintained by the colliery owners or by Government should be inaugurated on collieries and the members of the missions should teach the labour to strive for a higher standard of living.

Better housing conditions are essential. In the Jharia field there is shortage of building

sites but this might be overcome by building many storied blocks of flats. Latrines and general draining must be improved.

Parks and children's play-grounds must be provided.

Malaria and dysentery must be wiped out from the coalfields.

The drink evil is rampant amongst all classes of mining labour and the most obvious way of removing it is to increase the excise duty on all classes of drinks.

Dairy Farms and Vegetable Farms can easily be established near collieries which have water to spare and the labour could get the benefit at cost price of good milk and fresh vegetables which at present are unobtainable.

Khoraki (at half pay) should be paid to all permanent workers for periods of sickness duly certified by the colliery doctor up to maximum of 30 days per year. Khoraki should also be paid to the worker if through no fault of his own is unable to load coal after going to his working place.

A properly organised Government Sponsored Labour Organisation with Labour exchange to prevent the indiscriminate wandering from colliery to colliery of labour should be brought into operation as soon as possible.

(15) (a) Yes at individual collieries at the expense of other collieries.

(b) No.

(16) If it is meant that the demand over the next two years or so will exceed supply by 6 million tons and thereafter the demand for the extra 6 million tons will cease then the economics of the industry would probably best be served by importing the excess requirements as a temporary measure. If it is meant that over the next two years or so demand will exceed supply by 6 million tons and thereafter supplies will meet the increased demand then the immediate excess requirements should be imported. In the meantime excess requirements will be made up and measures for increasing the O.M.S. as pointed out in 14 above will be having effect.

We do not consider that the too rapid mechanisation of the industry and the displacement of the present illiterate and physically poor labour force by more virile workers from other provinces will be a satisfactory solution.

(54) Where systematic depillaring is being carried out 70% to 75% and with the sand stowing 85% to 95% of coal is extracted. There has been a decided improvement in recent years owing to regulations having been drawn up to govern sizes of pillars, galleries, etc. in the first working and in most collieries more systematic mining is now being carried out.

(55) The existing Regulations are adequate for securing the maximum extraction of coal.

(56) *There should be no rotation of working.* Rotation should be left to the decision of the management.

(57) Stowing should be definitely enforced for conservation purposes for all coals of a Commercial value to the Country. The cost should be borne by a *Cess on the Mining Industry*.

(58). Government should undertake the delivery of sand for stowing purposes, and should acquire sand rights. Only collieries situated conveniently near sand supplies have been able to resort to sand stowing. There are many collieries, however, situated at distance away from the source of supply where it is necessary for safety and conservation to sand stow but cannot be so owing to the high cost of transportation for each individual colliery. By Government undertaking the delivery of sand all collieries will have equal facilities and collieries not all belonging to the one Coy will be able to participate in any scheme.

Government should be able to take over the existing sand arrangements at a valuation figure and incorporate these present schemes into a scheme for the delivery of sand to all collieries. The same reasoning applies to the sand rights.

ORAL EVIDENCE OF MESSRS. R. ROBERTS ARNOLD AND W. M. BURCH REPRESENTING THE NATIONAL ASSOCIATION OF COLLIERY MANAGERS.

Question.— Could you tell us something about the representative character of your Association?

Answer.— It is composed of about 130 colliery managers; one of the qualifications for membership is a First Class certificate of competency. Indians are eligible and there are at present 15 Indian members.

Question.— Is the Association in any way sponsored by the producers?

Answer.— No. It has no connection with the producers whatsoever. It is a technical society, where technical matters relating to mining are discussed.

Question.— You have suggested that the more power should be given to the Mines Department to control or prohibit de-pillaring in shallow seams. Under what circumstances would you prohibit?

Answer.— We have particularly in the South eastern side of Raniganj colfields, seams close to the surface in which when the coal is taken out, air goes in and fires are started, against which nothing can be done. Only where unsatisfactory conditions still prevail in regard to dimensions and positions of barrier etc. should this prohibition be applied.

Question.— In question 15, you have suggested that collieries should be allowed to work only 6 days and that Sunday loading should be abolished.

Answer.— It is largely a question of handling labour. The labour like to be free on Sundays and we have tremendous trouble to load on Sundays.

Question. There is the other side of the picture. It has been suggested to us by the Railway Administration that attempts should be made to even out production throughout the week.

Answer. We have to comply with the regulations which require that labour should be given a day off, under the Mines Act and Sunday is the natural stop day.

Question. Do you envisage any practical difficulty in increasing the output from the Bengal Bihar fields to supply an estimated demand of 28 million tons?

Answer. I think we can increase the output, but not immediately.

Question. What sort of facilities would you need in order to step up production?

Answer. First we want labour. At the moment we have been very very short of labour. Labour has been increased partly by a Government-sponsored scheme—the Gorakhpur labour arranged by the U.P. Government. These labourers come and stay at the collieries for 11 months and then another batch comes in and relieves the first. That is what is happening under the scheme. But the scheme is only in its initial stages.

It can be extended and adopted throughout the coalfields and will then help also over the seasonal migration of local labour.

Question. For this sort of labour your suggestion is that there should be a centralised labour exchange.

Answer. That would be very helpful. But it is not possible for the industry itself to recruit on these lines.

Question. Today, the Raniganj Recruiting Organisation is being financed by the respective collieries with no support from Government. If your suggestion were enlarged upon and a Central Recruiting organisation were built up with the voluntary consent of all the collieries in one particular field, i.e., different recruiting stations in different fields, with sort of coordination at the top, would not industry be willing?

Answer. The organisation is actually meeting the recruiting expenses on Gorakhpuris who are supplied direct to the trade, i.e., without the intervention of the Unskilled Labour Supply Directorate of the Central Government. We pay a sum of Rs. 40/- per head to each recruit. This Rs. 40/- includes the cost of two uniforms and also a blanket and also cooking utensils. They are brought in batches of 100, and a batch of 100 goes to each colliery. They are brought in train loads, seven train loads at a time, and it is arranged that each colliery take a hundred in one month and another hundred in the next. We are following this for the last four months.

Question. It has been put to us that the recruitment of this type of labour from Gorakhpur has a tendency to affect the present labour force in the adjoining areas in the sense that they feel more and more disinclined to work because of their social and living conditions.

Answer. The local and Gorakhpur labour are absolutely separate. They live separately, feed separately and go to work separately.

Question. Is this segregation possible?

Answer. Yes, because most mines are divided into districts.

Question. Speaking of the recruiting organisations, how far does it extend its activities?

Answer. As far as Gorakhpur in the U.P. and upto Bilaspur in the Central Provinces.

Question. Is there any conflict in that particular area between the Bengal and Bihar fields and the C.P. and Central Indian fields?

Answer. We were told during the war in Bilaspur there was a conflict, not due to the Central Provinces coalfields, but due to military recruiters taking over the village where this organisation was operating. For quite a period from 1943-45 it was just futile even to send one to recruit Bilaspuris.

Question. Do you think that the fact that women are still allowed in mines in Korea and Rewa would affect your recruiting in Bilaspur?

Answer. No.

Question. Apart from this organisation, do you employ individual recruiters?

Answer. We almost entirely depend upon them.

Question. In the second questionnaire you have very appropriately pointed out the danger of Directors of a coal company not possessing knowledge of the coal industry. Have you any reason to fear that the Managing Agents today may attempt to run the collieries otherwise on sound technical lines?

Answer. We have not as an Association.

Question. As individual mine managers?

Answer. No.

Question. Is it your opinion that the technical side of the industry as a whole today is fairly efficiently run?

Answer. I would say yes so far as the bigger collieries are concerned. The industry as a whole so far as 75 % of it is concerned, is very efficiently run.

Question. But there is a portion of the industry which lacks technical advice, technical personnel not being available either because of lack of funds, etc. Have you any suggestions to make as to how the technical side of that portion of the industry could be improved?

Answer. The only way in which that can be done is through the Mines Department.

Question. Would you prescribe any minimum output for one colliery as a pre-requisite for the grant of siding or the installation of a private weigh-bridge?

Answer. I do not think you could lay down anything like that, because it depends so much on conditions.....

Question. Suppose there is a small colliery today quite able to live economically under the present conditions but having an output of only 20 tons a day. Should that colliery be entitled to a siding and or should the application be turned down on the ground that the colliery produces only one wagon a day.

Answer. I do not know what the minimum should be. It is a question of economics of railway operation as against everything.

Question. Have any comments to make on the unsuitability of open wagons for long distance traffic?

Answer. Open wagons are what we want. It is for the people at the receiving end to make any comments.

Question. Does not the quality suffer by exposure?

Answer. I don't think quality is affected.

Question. Raising costs today are considered to be high. Can you suggest any measures to bring them down to a reasonable level?

Answer. By raising as much coal as possible.

Question. Would you advocate mechanisation to a larger extent?

Answer. Yes. That is another step towards increased production.

Question. In regard to the education of the mines, is it your experience that increased educational facilities tend to attract the mining community away from the mines?

Answer. I would say it attracts a community to the mines, but in the long run, the sons of miners who are educated may prefer to work elsewhere. However, so long as we can bring in men, it is all right. Elementary education is wanted, because without it many jobs in a mine cannot be done efficiently. You take the electrician, mechanical mistry or fitter. Some elementary education would be of great assistance to him. Elementary education, as far as the mining community is concerned is definitely essential and I think we also want further facilities for training mechanical supervisory staff. Actually, this is done in the School of Mines, but it is only for people who have the means and not for the worker. There is no facility for night schools where they can learn particular trades or jobs. This is definitely wanted.

Question. Should it be the responsibility of the industry or the State to provide such technical education for the supervisory staff?

Answer. It is the responsibility of both.

Question. You have suggested here that there should be a safety in mines research section established but it should be entirely separate from the Fuel Research Institute and under the control of the industry itself. Today, safety in mines is the exclusive province of the Mines Departments,

under the Central Government. Isn't it more logical that research in connection with safety should work in very close liaison with the coal safety department?

Answer. That is following on the practice in England today. The mineowner is concerned about the safety of his mine and the safety in mines research is run by them and not by the Government, although there is very close liaison between the two Departments.

Question. There are plenty of defects visible in the structure of the coal industry today. Is it your idea that these defects can be rectified by some sort of legislation and control over recruiting, methods of work or grant of leases and without attempting the drastic step 'nationalisation'?

Answer. Yes, that is our opinion.

Question. And if the owners are either unable to or unwilling to comply with such regulations what should be the fate of such owners? Would you agree that there is then no alternative left but for the State to take over such mines and run them for the benefit of the owners as their custodians or acquire them outright?

Answer. Yes, for such a situation would be dangerous.

Question. It has been suggested seriously that there should be increased mechanisation so as to meet our increasing demand for coal. This may displace and dispense quite a large amount of mining labour and will ultimately mean very large scarcity of labour in the mining districts. Do you agree with that?

Answer. No. Mechanisation of mines will take a little time. Some time will be taken to train personnel. If the coalfields were to be mechanised next year there is the question of whether you will get the results anticipated for years to come. It is a question of training personnel. You cannot put the machines in the hands of people who have not seen them before and expect them to be efficiently operated.

Question. Perhaps this would be a good compromise that in the new fields which may be opened up, in order to satisfy the increased demand in those fields; greater attention be paid to mechanisation?

Answer. Yes.

Question. Why do you advocate the acquisition of coal rights by the State?

Answer. I think there is no alternative. Either you have statutory authority dealing with the item one which forms part of the questionnaire or else nationalisation of coal rights. It has been put down quite clearly.

Question. Is this your suggestion that the present method of grant of leases and the present method of inspection over the working of leased areas have been working so inefficiently as to cause considerable dissipation of the coal resources?

Answer. Yes.

Question. You are also in favour of State control over distribution and prices. Do you mean by that that there should be fixed prices for the various qualities of coal?

Answer. Yes, there should be a fixed minimum.

Chairman. Would you go further and give labour a fair deal, some sort of a minimum wage?

Answer. We have more or less got that now. We have a statutory minimum. In practice one cannot afford to have a man unless the minimum is given to him.

Chairman. By State control over distribution do you mean that there should be an enforced regulation of the different types of coal for different industries?

Answer. No. Our idea was to have control similar to that in force now.

Question. You have stated that there should be no rotation of working. The 1937 Committee took a contrary view. Why are you opposed to control over rotation of work?

Answer. Because of our suggestion that stowing should be applied for conservation also.

Question. When you say we should adopt sand stowing for all coals of commercial value to the country, you don't include seams with coal of 35% ash content?

Answer. These could be left out.

Question. In trying to enforce stowing would you suggest some order of priority as a sort of guide to the Stowing Board?

Answer. Better quality seams should be given the first priority.

Question. Don't you think that there are seams which are very wastefully extracted where quicker action is necessary, irrespective of quality?

Answer. It is for the stowing Board to consult the technical body.

Question. Is it your technical view that Grid stowing should be adopted for a group of collieries in the various parts of the coalfields, or each colliery should have its own arrangement?

Answer. Arrangements should be made to supply sand to groups of collieries. We have 3 collieries supplied by one railway.

Question. Could you give us some idea of present electricity supply position in the coalfields?

Answer. In the Raniganj area the position is quite satisfactory. In Bihar there are many power stations which have increased their output but could not get priority for various materials.

Question. Do you think that the Bihar Grid system will be able to meet all your requirements?

Answer. We hope so.

Question. Should the present small generating stations be scrapped or allowed to continue?

Answer. That depends on the efficiency of the stations. If electricity can be supplied

on a competitive basis with the Grid by a small station, there is no reason why it should be scrapped.

Question. You have, in your reply made very useful suggestions indicating the lines on which labour conditions can be improved. You think these suggestions if carried out would improve the standard of living of the labour?

Answer. I think so. In my own colliery we have carried out 70 per cent. of those suggestions now. Gardens are encouraged. Mining education is given and so on.

Question. As a result, do you notice any improvement in the attitude of labour in regard to their general tendency to migrate during particular seasons of the year?

Answer. I don't think it has influenced them to that extent.

Question. Are you satisfied that the present annual output of mine managers from the various training centres in India adequate?

Answer. There has been a shortage in the last 2 years.

Question. How many passed out of the School of Mines.

Answer. I think 119 sat for the examination and 15 passed.

Question. Are you satisfied that the training which the students get at the School of Mines is adequate or do you think it should be improved?

Answer. I can only judge the training by the people coming to me from the School, and I think they can be better.

Question. In what way?

Answer. If they had acquired more practical experience. Stricter supervision over the students in the matter of practical training seems necessary.

Question. If the scheme for sand-stowing becomes very much developed and if it has to be done on a very much bigger scale than at present do you think it is possible to supply sand in the present individualistic method or would it be necessary to have centralised methods?

Answer. I think it looks as if something will have to be done on an agreed basis. Location of the coalfield, area, what would be the better arrangement, and so many many things come into it. We are at the moment rather worried about the dams that are going to be erected on the rivers as these may affect our sand supplies, because it takes a big flood to bring sufficient sand to fill up the areas, from where sand has been taken. Only record floods will bring sufficient sand to level it all out. During this season, almost all last week there was flood and it flooded from bank to bank and even then the places from where sand was taken have not been filled-up. It takes a big gush of water to fill up the pits. Only the last big floods put the sand back.

Question. You are suggesting that regulate flow from the big dams will not help in filling the pits?

Answer. That is what we fear. But I suppose they are people who know all about the behaviour of rivers and should be in a better position to judge.

Question. Have you any other suggestions to make to improve the technical aspect of production in this industry?

Answer. If the colliery managers were relieved of certain responsibilities which are not allied to mining, they would be able to devote more time to technical matters. They are now burdened with such things as distribution of rice, cloth, particularly. Maternity is another.

Chairman. That is something you have to take up with Managing Agents.

51. WRITTEN EVIDENCE SENT IN BY THE INDIAN COAL MERCHANTS' ASSOCIATION, JHARIA.

QUESTIONNAIRE No. 1.

Question. 2 (Items 2—8)

Grading and Exports.

The export of Coal from India is essen a in view of the following facts :—

In order to maintain reciprocal privileges an export of Coal in the far East and with the nearest countries like Ceylon, Burma, is essential, wherefrom huge quantity of various commodities are being imported. The export of Coal Trade helps to a great extent in the trade in maintaining good commercial relations.

The considerable difficulty was experienced to re-start export of Coal when it was necessitated under peculiar circumstances to support the Coal Industry in India, and, therefore, it is suggested that the permanent export trade be built up.

In order to maintain the standard of quality and market in foreign countries, the grading of Coal is absolutely essential. In the interest of Indian consumers and country the grading for coal for internal market is also desirable and should be compulsory. In the recent —years, a large number of Collieries have been opened and to help the development of such new fields, the grading of Coal will be helpful.

Question. 3. (Items 10—12). It is found that the shipments of Coal from the Port of Calcutta was successfully managed throughout the period of War and it is intended that it would still facilitate more if more *Stocking pace* and loading berths be provided. There is general complaint that no suitable arrangements have been made at various Indian Ports for unloading of Coal etc. and which requires attention for overhauling the present arrangement and wherever possible by providing unloading and loading facilities straight from the Steamer to the land, and *vice versa*.

Question 4. (Item No. 17). Though the question is not being properly followed, we find that the present freight payment system i.e., "To PAY" is quite satisfactory and should be applied uniformly on all the Railways. It may be mentioned that when the Coal is booked to stations situated on some Native State Railways and O. & T. Railway, the freight charge is prepaid which should be abolished and uniform system be adopted throughout.

Question 4. (Item 21). It would be very much facilitating to the trade if a common freight sstem be adopted between the group of Coal Fyds. The freight method adopted in Jharia Coal Fields has been found quite suitable. Same method may be applied for Raneegunj Coal Fields as well as Ramgarh Bokharo Jharna Coal Fields.

Question. 4.(Item 22.). The introduction of seasonal freight is not turned out successful in the past and has no any attractive effects on the consumers. Not only the quality of Coal deteriorates but there is a good deal of wastage, which consumers do not prefer. Moreover, there, are many other difficulties in the transport of Coal in the Slack season. There are many restricted limitation for despatch of Coal through certain Vias which cannot be exceeded under any circumstances. Secondly, there is limited space for unloading Coal at various destinations and when the wagons are despatched in excess, same entails into restriction of booking.

We drop other questions as found not interested.

QUESTIONNAIRE II.

Constitutional.

1. In the case of an essential key industry like the coal the division of responsibilities between the centre and the Provinces is not at all desirable. With regard to the industry, there should be uniformity in legislation and without a central control there may be difficulties in the way of attaining this uniformity, as the different provinces left to themselves may make their own legislation without reference to the Centre. The power to regulate the mines and mineral development in the different provinces and the production and distribution of coal should in our opinion remain vested in the Central Government and there must not be any splitting up of responsibility between the Centre and the Provinces and irrespective of its place of location the industry should be treated as one homogenous whole.

2. We fully agree with the suggestion that there should be one separate Central Government Department dealing with all questions relating to the coal industry and that for mines and minerals including coal there should be one separate department placed in charge of some Hon'ble Member of His Excellency the Viceroy's Council.

PART II

(Economics of the Coal Industry)

Structural Organisation of the Industry.

3. We do not feel called upon to offer any detailed criticism about the present structure of the units of production in the coal industry. Under the present system there are many firms & companies of Managing Agents whose interests are not confined to coal alone, they have other industrial interests also and as such in themselves they represent both coal producing and consuming interests. Generally what is known as the European Group of Collieries represented by the Indian Mining Association comes under this category.

The Indian interest in the coal trade is mostly private individual owned or owned in the form of private limited liability companies.

There cannot of course be any reasonable objection to private consumer interests owning their own collieries for catering to their own requirements of coal, but we think they should not be allowed to cater to the needs of other consumers in the market.

As for Railways working their own collieries experience, has shown that so far as the State Railway owned Collieries are concerned the cost of production has always been very high and sometimes much higher than the rate at which coal of similar quality could be purchased in the market. It thus constituted a drain on the public finance and that besides it was really a case of state competing with private enterprise and is thus open to serious objection.

4. We are of the opinion that the managing agency system has made a distinct contribution towards the development of the Indian Coal Mining Industry and it will be no use trying to belittle its importance. Most of the big European as well as Indian collieries of today owe their gradual development and successful management to efficiency and business acumen of the managing agents of these coal companies.

5. From the point of view of prices, we do not consider that except in the case of state owned collieries the alliance between units of coal production and consuming interests has been in any way unhealthy.

6. The result of Indian Government Railway owning and operating their own collieries has in the past been generally to bring down prices of coal to an uneconomic level. As one of the largest consumers of coal, the Indian Railway who purchase their requirements of coal through the Chief Mining Engineer to the Railway Board were able to use these Railway Collieries as an effective weapon to keep down the prices of coal.

The chronic shortage of public supply of Railway wagons for coal despatch and the uncertainty about the supply always led the collieries to hanker for orders for supply to the Railways in which there is always a guarantee for a steady and assured despatch and this coupled with the fact that the Railways were in a position to arrange for a certain quantity of coal from their own collieries without recourse to the market led the Railway Board to adopt a coal purchase policy which was ruinous to the trade.

For the bare necessity of keeping their mines running, which would otherwise become full of water and involve additional expenses for dewatering at the time of re-opening during those dark days of depression, many of the collieries were forced to sell coal to the Railways at unremunerative rates even below the cost of production.

The price fixed for loco coal was often an important factor in determining the public market rate, which also thus tended to become unremunerative and fell below the economic level.

Distribution and Marketing.

17. We do not consider the constitution of a central marketing Agency for coal formed either voluntarily by the Trade or under Govt. aegis at all desirable nor feasible.

In our opinion the marketing of coal should be left to ordinary trade channels and prices should be left to adjust themselves according to the law of supply and demand. To prevent forcing down of prices to uneconomic levels on the one hand and on the other hand for stopping profiteering and the demand of the producers for arbitrarily high prices in abnormal circumstances, it may be expedient at times to fix the minimum and maximum prices of coal and the prices should be allowed to oscillate between such minimum and maximum that may be fixed. For fixation of such minimum and maximum prices, we do not think it is necessary to set up and maintain any elaborate or cumbrous machinery.

In adequate transport facilities due to shortage of Railway wagons as also other traffic difficulties of the Railways have been at times an important factor in determining the prices of coal. At times experience has shown that it was not so much the price of the commodity itself but the ready means for despatch thereof that accounted for the extra-ordinarily high price that the consumer had to pay. During the period of acute scarcity of wagons in the years 1941 and 1942 when there was no control, prices of coal in wagon loads ready for despatch soared upto Rs. 50 per ton and above though the pithead price was only Rs. 3 to Rs. 4 per ton and priority consumers were also getting coal at that rate. The solution for this problem can be found only in the provision of better transport and traffic facilities for coal from the coalfields to the different consuming centres in the country.

Whatever the value may be of the system of price fixation allied to Government Controlled distribution in stabilising prices in abnormal times, we consider such a system wholly unnecessary and undesirable in normal times.

In any statutory board that may be set up for fixation of prices and for distribution of coal it is essential that there should be effective representation of the coal consuming interests and that of the Middlemen who really form the link between the consumers and the producers.

18. We do not think that it is at all necessary to regulate the use of different kind of coal for different purposes. We agree that there should be an analysis of all Indian coals before any such scheme for regulating use of coal for different purposes can be put into operation.

Transport.

22. We do not favour the idea of distribution of coal on any zonal basis nor do we consider it to be practicable. There must not be any restrictive measures as suggested in this question as obviously it would be most unfair and disadvantageous to the consumers if they are turned down to the use of particular type or quality of coal irrespective of what they themselves consider to be good and suitable in their own interest, having regard to the type of machinery and other appliances used by them.

23. We do not find any objection to any scheme for pooling of Railway freights, provided it does not tend to unduly increase the freight for short distance traffic to important ports and consuming centres.

24. We think that for encouraging the use of inferior grades of coal for industrial purposes and also for popularising the use of soft coke throughout the country, there should be special Railway freights for inferior grades of coal and also for soft coke.

25. In the interest of the industrial progress of the country and the consequent benefit reaped by the Railways, the Railway policy should always be to keep the freight for coal as low as practicable and guiding principle ought to be "What the traffic can bear".

26. We cannot approve of the idea of providing special reduced Railway Freight for train loads of coal confined to one consumer as this would place other consumers and also the public at disadvantage by increasing supply of rakes and thus reducing number of available Railway wagons.

This will also unnecessarily place the small industries at some disadvantage in relation to the big ones who would thus be able to arrange for coal at cheaper cost.

It will also adversely affect the interest of the small collieries who have no siding accommodation for loading of rakes and will divert orders to the bigger collieries and thus create new difficulties.

27. It is true that route restrictions have always handicapped the free movement of coal and the restrictions should be removed as far as practicable.

28. In the matter of public wagon supply and other facilities offered to collieries, the B.N.Ry. was always more liberal than the E.I.Ry. and collieries served by the B.N.Ry. were always better off in the matter of public supply of wagons. We are inclined to think, now that both the Railways are state-owned that a common pool of wagons of both railways operated by a central body would facilitate more efficient distribution of available wagons.

Price & Profits.

29. We are in favour of a return to free competition in the matter of coal prices. But having regard to the experiences in the past when excessive competition forced down prices to uneconomic levels, we suggested in our reply to question 17 that the prices might be allowed to oscillate between two extremes. Minimum and maximum prices to be fixed so that the law of supply and demand could have a play between these two extremes.

We do not think that this can be done by the trade on a voluntary basis. When necessary this fixation of prices should be made by means of a statutory board set up by the Government and in this statutory Board there should be provision for adequate representation of the interests of the producers, consumers and of middlemen.

We are definitely of opinion that the fixation of prices should not be left to Government alone but should be by means of a Statutory board of suggested herein above, composed of the representatives of the producers, consumers and middlemen guided by some Government officials connected with purchase of Railway coal.

30. We do not agree with the idea of such partial control over prices of coal supplied to Government, Railways or Iron and Steel Consumers.

The fixation of such prices is likely to have a bad repercussion on prices of coal for these consumers, and would not help in stabilisation or prices or other conditions in the industry.

31. As suggested by us herein above, if prices are to be fixed through Government intervention it should be only through some committee or Board set up by the Government under the Chairmanship of some high Government Official connected with purchase of coal and should be composed of the representatives of producers consumers and merchants.

32. The difference in the prices of coal F.O.R. Colliery as fixed at present for the different grades of coal appears to us to be quite satisfactory.

33. It is very difficult to suggest one uniform basis for fixation of prices or indicate a standard element of profit that should be included in the prices. The working conditions vary from colliery to colliery and each colliery has its peculiar problems and difficulties.

Coal Mining is a hazardous industry and coal properties are wasting assets and there are always very great unforeseen risks and dangers and it is therefore reasonable that the margin of profit should be more liberal than in the case of other industries.

34. We do not consider that the commission earned by the middlemen is at all excessive.

In considering this element it will not do to lose sight of the fact that the middlemen have played a very important part in developing the coal trade. The middlemen are generally the links between the producers and the consumers scattered throughout this vast sub-continent and oftener than not they are the true advisers who help the consumers in selecting and finding out the fuel suited to the consumers particular needs and watch the consumers interest at the producing centres by looking after the loading and by seeing that the stuff loaded is free from dust, shale, stone and other impurities and also arranging for quicker despatch on their account from the collieries and it is only legitimate that the consumers should pay for their services rendered to them and in normal times the consumers do not grudge the commission or the middlemen's profit which is practically earned by the middlemen for their labours and services rendered.

In periods of trade depression the middlemen also help the producers in finding out markets for their coal and in return for the small commission paid to them, they take upon themselves the risk and responsibility for payment of the value and also the Railway Freight of coal and save the collieries from a lot of risk and troubles

It will not also be out of place to mention here that so far as the soft coke trade is concerned, the merchants helped considerably in the expansion of the soft coke trade by creating new markets for soft coke through propaganda carried on by them in their own interest and were thus considerably helpful to the trade in finding an outlet for the inferior grade of coal in the dark days of acute trade depression.

So far as coal transactions in which middlemen on their own account make out right purchases of coal from the producers on yearly basis and sell directly to the consumers, it should be borne in mind that the middlemen in such transactions always take a great risk and consequent on the fall of prices they have sometimes to incur heavy loss. so if during times of brisk trade, they have some margin of profits, nobody should in fairness grudge the same.

Besides the middlemen have also proved their utility by helping the smaller collieries with their limited financial resources in developing their collieries by making advances of money against future delivery of coal.

The existence of middlemen is no peculiar feature in the coal trade. All trades have their middlemen and in the present economic structure middlemen occupy an important and indispensable position and without their help it is impossible to carry on the work of distribution in trade.

Taxation:—

35. In comparison to other industries, the cesses and taxes that the coal industry has got to bear are in our opinion unduly heavy.

There are a number of cesses and taxes that the industry has to bear which may be briefly enumerated as follows:—

1. Mines Board of Health Cess.
 2. The Jharia Water Board Cess (For collieries in Jharia Coalfield).
 3. Rescue Station Cess.
 4. Stowing Board Cess.
 5. Road Cess.
 6. Labour Welfare Fund Cess.
 7. Chaukidari Tax on basis of housing units in a colliery.
 8. Soft Coke Cess,
- and also (9) Bihar Sales Tax.

It may be stated here that exemption is made under provisions of the Bihar Sales Tax Act in cases of Sale to certain registered Bodies and public utility concerns and also in cases of coal despatched direct in wagon loads to destinations outside the province. But the local Sale Tax Authorities have also refused to grant exemption in latter cases if the sale is made to a party within the province though the coal is despatched direct to a destination outside the province. This view seems hardly to be tenable according to the language of the statute itself.

It will also be interesting to note here that though Road Cess and Mines Board of Health Cess etc. are payable by the collieries themselves in respect of their profit from collieries and coal raisings, they have also been held liable to pay the Road Cess, Mines Board of Health Cess etc. assessed on the Lessor and recoverable from the Lessors of coal properties, on the basis

of judicial interpretation of the terms of some leases, though in many such cases the Lessors have been upto recent times themselves paying their shares of the taxes and cesses etc. imposed and assessed in respect of the mines.

Some of these taxes such as Soft coke Cess, Stowing Board and Rescue Cess etc. are now realised along with Railway Freight at destinations direct from consumers and we suggest that this practice may conveniently be followed in the case of also some other taxes and cesses etc. to lighten the burden on the industry.

National and International Commercial Policies:—

36. Indian coal had some export markets in countries like Burma, Ceylone, China and also in some countries in the Middle East. We consider that there should always be reciprocity in the international treaties and trade agreements for safeguarding the interests of Indian Coal in these markets.

37. We do not consider that the implementing by India of the International Conventions in respect of colliery labour has produced any specially harmful result.

VIII

ADMINISTRATIVE MEASURES

73. As we have suggested in our reply to question 35, we consider that arrangement can be conveniently made for realisation of some of the existing Taxes and Cesses along with Railway Freight directly from consumers at destination.

Further we are of opinion that in some other cases also such as in the cases of the Jharia Mines Board of Health Cess, Jharia Water Board Cess or Road Cess it is quite feasible to bring about an unification of the different Boards now functioning such as the Mines Board of Health. The Water Board and the Local Board and to place them under one control and thus to arrange for collection and utilisation of the different cesses through one body.

74. We have our doubts regarding the practical utility of a body like the Soft Coke Cess Committee and we are of opinion that at present when there is an all round steady demand for coal and coke there is no longer any justification for the existence of this body.

If it exists at all, we consider that there should be provision for larger representation of the interests of Coal Merchants in this committee, as their co-operation is essential for bringing about an expansion of the Soft Coke Trade and for carrying on propaganda in behalf of soft coke which was the primary object for which this body was created. We do not feel called upon to make any comment on the composition of the Coal Mines Stowing Board but we feel that there ought to be provision for representation of the interests of the middlemen in the Coal Grading Board.

75. We consider that unification as suggested in this question is desirable and that the co-ordination of these different bodies will bring in efficiency and also economy.

ORAL EVIDENCE OF MESSRS. JIVADAS ARYA, D.S. THAKER AND R.C. SHAH REPRESENTING THE INDIAN COAL MERCHANTS ASSOCIATION, JHARKHAND

1. The Association has a membership of 350 coal merchants and local coal merchants' associations.

2. Coal may be exported subject to two considerations viz. (i) needs of the internal market should be safeguarded and, (ii) the export of specified types of coal, chiefly metallurgical coal, should be banned. Even if internal needs have not been met to the full, small quantities may be exported in exchange for rice etc.; as far as possible, such exports should be of the inferior grades of coal. But no special encouragement should be given to the coal export trade.

3. Grading for the internal market should be compulsory so as to indicate where various qualities of coal used, but there should be no compulsion on consumers to use certain kinds of coal.

4. The system of grouping of freights should be extended to the Raniganj and Bokaro fields also as it is undesirable that different freights should be charged in the same coal field. In Raniganj there are five booking stations, viz. Ondal, Sitarampur, Radhanagar, Chaurasi and Asansol and all collieries starting from Ondal should be grouped.

5. Collieries owned by consumer interests should not be allowed to cater to the needs of other consumers in the market. In fact, the railways should not own their own collieries as this has been the cause of slumps in the coal industry; Railway collieries should be handed over to private enterprise. There are no grounds for apprehending danger to the Railways as a carrier service if they have no collieries of their own. There is however no objection to the steel and cement companies owning their own collieries.

6. The setting up of a Central Marketing Agency will not be in the interests of the consumers, producers and merchants because the co-ordination required cannot be maintained by having this agency, even if its scope is limited to pooling of supplies and distribution, publicising the use of coal in a scientific manner and enforcement of regulations in regard to the use of coal. Except in the case of the steel companies, it is difficult to say which kind of coal is needed by the different consumers. A Central Marketing Agency will also mean the elimination of middlemen who have hitherto looked after the interests of consumers with regard to the supply of the right type of coal; this function the Agency will not be in a position to perform. A Central Marketing Agency may also be harmful to consumers and small collieries. It is not true that with the introduction of the present control the middlemen have outlived their usefulness. In fact, the middle-

men's responsibility is greater now. The Commission has, however, been reduced from Rs. 2, which it was at the inception of coal control, to Rs.1-8-0 now. Prewar, the middlemen, acting as merchants took risks, and sometimes profited and sometimes lost.

7. The fixation of minimum and maximum prices for coal will leave sufficient scope for the activities of merchants and may give consumers a fair price. As the fixation of price should depend on supply and demand, it is better to have minimum and maximum prices rather than fixed prices changed periodically. There is probably no real shortage of production; the difficulty is over transport. There are many collieries with large pithead stocks of coal which cannot be moved. Labour, except during certain periods of the year, is no longer a limiting factor in production. Education is not likely to secure a settled mining force; what is needed are good food and facilities available to other industrial workers.

8. The Soft Coke Cess Committee which was set up to popularise the use of soft coke and conduct research is not doing any useful work and should be abolished. No propaganda is required as it is not possible even to meet the present demand.

52. WRITTEN EVIDENCE OF THE BOMBAY COAL ALLOCATION COMMITTEE.

QUESTIONNAIRE I

II

GRADING AND EXPORTS

3. The grading has assured both the foreign markets and Indian port of the quality of coal they were getting, and therefore Indian coal could stand any competition with South African coal.

6. Average cost of coal based on average rail freight charges for coal from Bengal-Bihar fields to Bombay is as under :—

	Rs.
Cost of coal f.o.r. Colliery	13-5-0 per ton
Freight	2-6-0 per ton
Surcharge at 20%	2-8-0 per ton
Labour Cess	0-4-0 per ton
Coal production cess	1-4-0 per ton
Stowing cess duty	0-2-2½ per ton
B.P.T.R. Siding fee	0-3-0 per ton
Labour for unloading wagon ex plot	1-5-0 per ton
ex plot cost of Railborne Coal	31-5-2½ per ton

Compared to the above railborne cost of coal the following is the Seaborne coal cost ex plot.

	Rs. A. P.
Cost f.o.b. Calcutta	20-12-0 per ton
Freight	30-0-0 per ton
Insurance	0-7-0 per ton
Shortage	0-6-0 per ton
Lighterage & landing	3-4-0 per ton

ex plot cost of Seaborne coal 54-13-0 per ton

From the above figures it will be perceived that, unless sea freight is reduced to about Rs. 8/- per ton coal shipments to Bombay will not become economical in comparison with the rail route. In view, however, of the very high operating costs of ships, we fail to see how sea freight on coal can be reduced to such a very low figure if at all any reduction is possible in the present rate.

7. Re-grading of all sections of seams should be undertaken as early as possible.

8. Grading of coal for internal markets is not only desirable but it should be made compulsory as it assures a buyer the quality of coal that he is likely to get.

III

PORT FACILITIES

11. The present unloading facilities in the Harbour of Bombay are quite suitable during fair weather. Arrangements should however be made by the Bombay Port Trust to provide a deep draft sheltered berth in the Harbour during monsoon where collieries could discharge without any difficulty and lighters go alongside the vessel.

12. Sufficient lighter and labour facilities are available in Bombay to meet her normal requirements of bunker coal.

IV

RAILWAY FACILITIES

15. A system of Priority should be laid down for allotment of wagons so long as Railways are not in a position to meet the full requirements of transporting coal in the Country.

17. Though the present freight payment system is satisfactory, considerable delay is experienced by the trade in getting refunds from Railways on overcharges and for wagons not delivered to consumers. Furthermore the Railways should be made responsible for shortage in weights delivered to consumers.

19. A certain allowance in the over-loading and under-loading of coal wagons against the actual carrying capacity must be allowed to the Collieries as it is not always possible owing to the absence of weigh-bridges at Collieries to load to the actual carrying capacity of wagons.

21. If the cost of freight from different Collieries to consuming centres be levelled up, this would be most desirable as this would avoid reckless exploitation of some of India's Coal Mines.

22. Unless a very substantial inducement is given by reduction in freights during off season consumers would not like to obtain their coal in the second half of the year, as at consuming centres there is always restriction on stacking space.

QUESTIONNAIRE II

DISTRIBUTION AND MARKETING.

17. A system of price-control allied to fixation of sales quotas for different mines fixed in consultation with the trade would be the most desirable thing. Apart from this, the Managing Agents' Merchants, Brokers and consumers of coal should be allowed to play their part without any intervention from the state.

18. As it would be most desirable to preserve not only metallurgical coal but also high grade steam coal, regulation of use of different coals for different purposes must be fixed after a thorough examination of the requirements of each class of Industry.

19. We agree that a complete analysis of all Indian Coals must be made but if this is likely to take a long time, requirements of Industries must be fixed on the basis of the present gradings of coal.

20. The Colliery must be made responsible for the despatch of the correct coal under whatever scheme that is settled.

21. The present sizes of coal are likely to meet the requirements of the markets.

VI

TRANSPORT.

26. If a reduction in freight rates is offered for 'train-loads' of coal consigned to one consumer, it would encourage consumers to purchase their requirements in bigger quantities and at the same time wagons would be released very quickly.

29. Return to free competition would be the most desirable thing but if at any time Government feel that prices charged to the Consumers are exorbitant or uneconomic from the point of view of the working Collieries, Government should have the power to fix prices for different grades of coal. A Committee composed of Government representatives, Colliery owners, and consumers should be set up for the purpose of price fixation.

32. As the cost of freight is the most important item at the consumers centre on the cost of coal received, it appears that the F.O.R. colliery prices for grade IIIA and grade IIIB coals should be at least Re. 1 lower than those fixed under present Colliery Control Order.

34. As the middle man accepts all the responsibilities of finance the commission charges are based on the services he renders and the risk involved. The Commission is never likely to be excessive as he had to act in competition with other middlemen.

IV

CONSERVATION OF HIGH GRADE STEAM COAL

50. High grade steam coal must be defined as coal of high calorific value with low ash and moisture contents.

51. Use of high grade steam coal must be restricted for purposes of raising steam where high temperatures and pressures are to be constantly maintained, or for special purposes where inferior coal will not serve the purpose. High grade steam coal should be allowed to be used as bunker coal to ships, as these have to maintain good speed and their carrying capacity is limited to the bunker space.

EXTRACT FROM A LETTER No. 1120 DATED BOMBAY 28TH JUNE 1946.

From : Hony. Secretary, Bombay Coal Allocation Committee.

To : The Secretary, Indian Coalfields' Committee.

* * * * *

I am also enclosing 10 copies of Statement showing the quantity imported by the Bombay Coal Allocation Committee, both railborne and seaborne quantity bunkered to ships, railborne and seaborne, and the various percentages and prices which were fixed by the Committee from time to time and 10 copies of Statement showing how the prices of bunker coal, both rail and seaborne are arrived at. These are the present T.I.B. prices.

(ENCLOSURE TO LETTER No. 1120, DATED 28-6-46
BOMBAY COAL ALLOCATION COMMITTEE
Cost of Seaborne & Railborne Coal as on 1-6-46 :—

	Rs.	A.	P.
<i>Seaborne coal.</i>			
C.I.F. Bombay (Cost of Coal)	51	9	0
Receiving coal from steamers into lighters, lighterage, landing and stacking on plots, and B.P.T. wharfage.	3	4	0
Loading coal into lighters, lighterage and putting T.I.B. on board the ship including B.P.T. wharfage	5	12	0
Plot rent and Insurance	1	0	0
Overheads, finance & profits	3	15	0
	65	8	0

<i>Railborne coal.</i>			
Cost of Coal F.O.R. Colliery	13	5	0
Railway freight to Bombay	12	6	0
Surcharge	2	8	0
Labour cess	0	4	0
Coal production cess	1	4	0
Excise and stowing duty	0	2	2½
B.P.T. siding fee and labour for unloading wagons	1	5	0
B.P.T. wharfage, labour for loading lighters, lighterage & labour for bunkering	5	12	0
Plot rent & Insurance	0	5	9½
Overheads, finance & profits	2	8	0
	39	12	0

BOMBAY COAL ALLOCATION COMMITTEE.

Year	Month	Quantity of Coal Imported		Quantity of Coal Bunkered		Percentage of Bunkering				T. I. B. Price				Remarks
		Railborne	Seaborne	Railborne	Seaborne	Rail		Sea		Rail		Sea		
						Date	%	Date	%	Date	Price	Date	Price	
1944.	October	12,331 10	..	16,837 00	..	..	100	..	..	..	38 0	..	..	..
	November	13,610 03	..	21,134 15	..	..	100	..	..	..	38 4	..	..	..
	December	10,969 07	..	19,926 02	..	..	100	..	..	..	38 4	..	..	..
1945	January	12,824 10	15,717 00	16,393 15	6,807 00	1-15	100	1-15	..	..	38 4	67-8	..	..
	February	11,504 02	1,240 15	11,719 15	9,189 00	16-31	50	16-31	50	..	38 4	..	..	..
	March	8,863 00	17,141 00	10,796 00	9,992 00	1-14	50	1-14	50	1-14	38 3	41-14	68 0	0
	April	273 00	225 00	16,811 00	6,389 00	15-20	50	15-20	50	15-20	38 0	15-20	68 0	0
	May	2,798 00	25,937 00	961 00	25,236 00	21-23	75	21-23	25	21-23	38 8	21-23	68 8	0
	June	15,280 00	15,375 00	801 00	15,287 00	..	75	..	25	..	38 8	..	68 8	0
	July	20,896 00	17,851 00	2,005 00	16,112 00	1-17	50	1-17	50	1-17	38 8	1-17	67 0	0
	August	..	20,667 00	2,513 00	12,665 00	18-30	100	18-30	..	18-30	38 8	18-30	67 0	0
	September	18 00	26,815 00	814 00	23,261 00	..	..	..	100	..	38 8	..	68 12	0
	October	22 00	14,727 00	5,167 00	17,995 00	1-15	..	1-15	100	1-15	38 12	1-15	68 8	0
	November	..	682 00	10,784 00	9,676 00	16-30	..	16-30	100	16-30	38 12	16-30	62 0	0
	December	..	20,548 00	532 00	21,487 00	..	..	..	100	..	38 12	..	62 0	0
1946	January	3,567 00	13,275 00	738 00	28,103 00	..	..	..	100	..	38 12	..	62 0	0
	February	4,752 00	21,514 00	12,417 00	11,573 00	..	50	..	50	..	39 12	..	64 0	0
	March	13,133 00	32,120 00	6,855 00	19,635 00	1-15	..	1-15	100	1-15	39 12	1-15	64 0	0
	April	6,280 00	12,482 00	12,675 00	11,926 00	16-31	50	16-31	50	16-31	39 12	16-31	64 0	0
	May	3,466 00	48,077 00	858 00	11,999 00	..	50	..	50	..	39 12	..	65 0	0
						1-15	..	1-15	100	1-15	39 12	1-15	65 0	0
						16-31	..	16-31	100	16-31	39 12	16-31	65 0	0
		1,35,587 12	2,98,393 15	1,70,738 07	2,57,332 00									

Opening stock with the Committee on 1-10-1944 was 53,072 tons railborne coal.
Closing stock with the Committee on 31-5-1946 was 17,843 tons railborne coal and 41,529 tons seaborne coal.
During the period the Committee has received 30,803 tons Seaborne coal from the principal Sea Transport Officer, India.
This quantity is included in column 4 of the statement.

for Bombay Coal Allocation Committee,
Hon. Secretary

ORAL EVIDENCE OF MESSRS. L.T. GHOLAP, C.I.E., I.C.S., S.C. SHETH, MANEKLAL CHOONILAL AND K.P. SHAH, REPRESENTING THE BOMBAY COAL ALLOCATION COMMITTEE.

Question.—Could you tell us briefly what are the functions of this Coal Allocation Committee ?

Answer.—The Committee came into existence during October, 1944. The bunker coal control came into existence from 1st July, 1941. The Controller of Indian Shipping did not then exist. The Controller's post was created about September 1943. The officer then was the Indian Shipping Adviser, and at the request of Government, because most of the coal had to be brought by rail, it was agreed that the Indian Shipping Adviser should consolidate the demands of the various bunkering and shipping firms in Bombay in the form of a statement and try to check them to see that they are reasonable and then send the statement on to the Coal Commissioner. Very little coal then came by the sea route, because shipping was not available and the position was dangerous in the Bay of Bengal. This continued till about September, 1944, when Mr. Faruque at a meeting called here suggested that we should have a pool, because one member could borrow from another in times of necessity. The demand would be placed by the Allocation Committee on the Coal Commissioner and the coal will be originally allotted to the Coal Allocation Committee who will do the distribution here. The position now is that any firm which is not a member of the Committee is not allowed bunker coal. We meet twice a month and fix the price proportion of sea and rail borne coal to be bunkered etc. There are 17 or 18 members on the Committee.

Question.—On what basis do you distribute the coal monthly ?

Answer.—According to the requirements members.

Question.—By and large what is the average amount of coal required for bunkers here ?

Answer.—Average is about 20,220 tons. The figures prior to 1st January 1946 do not reflect the correct position. The Principal Sea Transport Officer used to arrange for part of the bunkering requirements and only after the first January are all ships' requirements met by us.

Question.—In answer to our question you have given us the cost of the rail borne coal and sea borne coal. I would like to know how the coal f.o.b. Calcutta comes to Rs. 20-13-0.

Answer.—It includes for price, freight, cesses Port Commissioners' dues and Re. 1 per ton commission to M/s. Andrew Yule & Co. who ship our coal.

Question.—The sea freight on coal is shown to be Rs. 30 per ton. How does it compare with the freight on other commodities from Calcutta to Bombay ?

Answer.—The general cargo rate from Calcutta to Bombay is about Rs. 55-8-0.

Question.—There is some suspicion in our mind that the rates have gone up because of the shortage of shipping, not because of increase in operating costs. Is that correct ?

Answer.—There are two factors. Firstly, for coal and salt we never had a fixed conference rate before the war. We carry a limited quantity of salt in bags, the major portion goes in bulk. It is carried in chartered ships and arrangements are made with the charterers. During the idle season, the Indian Coastal Conference used to carry coal and salt. The rates varied from Rs. 5-8-0 to Rs. 7 a ton, but they were not economic. They used to take this cargo though it may have meant some loss to them, because of the other cargoes offering. When the war started H.M.G. requisitioned all the British ships and the Ministry of War Transport, who were responsible, fixed the freight rates taking into consideration various factors, not only the paucity of shipping but the increased cost of operation.

Question.—But the rates have gone up by 500 per cent.

Answer.—It is difficult to say that because we do not know the economic rate in pre-war times.

Question.—Can the ordinary customer look forward to any lowering of the freights in the near future ? As long as the trade remains non-competitive you can charge whatever rates you think the traffic can bear.

Answer.—We cannot reply to this question as Committee, because we are concerned only with the distribution of coal and price fixation.

Question.—Could you tell us from your general observation whether shipping, particularly Indian shipping as against non-Indian shipping operating in our coastal waters is dependent to any appreciable extent on this movement of coal by sea ?

Answer.—Yes, definitely.

Question.—In view of the high rates prevailing today and the cheapness of the rail route, there is the danger that the Railways may capture the entire trade. Would that make an appreciable difference to the shipping Companies ?

Answer.—Definitely.

Question.—Therefore should not the shipping companies try to place themselves on a comparative level with the railways.

Answer.—It is difficult to bring in comparisons. In view of the existing high operating costs of ships it is difficult to bring the shipping rates down to the Railway level. The shipping companies have this question before them and they are watching the operating costs. As soon as they come down the position should improve. War risks and marine insurance charges have gone down considerably but not to the level of pre-war rates.

Question.—You have expressed yourself in favour of a price control allied to fixation of sales quota and also in favour of the use of different coals

for different purposes. Later you make the statement that return to free competition would be most desirable. A system of price control coupled with sales quotas coupled with regulation of the use of different coals for different purposes cannot really be reconciled with a system of free competition.

Answer.—On that point, we meant that the consumers should be free to buy from any colliery. If the consumer needs No. 2 grade coal he should be able to buy that coal from any colliery.

Question.—Does not complete regulation imply controlled distribution?

Answer.—That is a point on which it is difficult to give an answer. There is a difference of opinion in the Committee. Some members want the sales quotas to be fixed and the prices controlled but they do not want control on distribution. There are other members who feel that distribution should also be controlled and that the present Committee should continue in some form.

Question.—Are you in favour of fixation of prices?

Answer.—Yes, for as long as the shortage continues.

Question.—If there is plentiful coal available the control should be taken away. Is that your view?

Answer.—Yes.

Question.—In view of the limited resources of good quality coal in India, it has been suggested that bunker supplies should be limited to the quantity needed for taking a ship to the next bunkering port of call and no more. Have you any comments on this?

Answer.—It is not always practical, especially with ships going to the far east. They cannot get coal at Hongkong and have to come back and take coal at Singapore.

53. WRITTEN EVIDENCE SENT IN BY THE SOUTHERN INDIA MILLOWNERS' ASSOCIATION.

We beg to enclose a copy of letter dated 11th June, 1946 from Messrs. Buckingham & Carnatic Co., Ltd., Madras, setting forth their views regarding coal supply to South India, for your information.

The Buckingham & Carnatic Company Limited,
Post Box No. 66, Madras, 11th June, 1946.

The Hon. Secretary,
The Southern India Millowners' Association,
Race Course, Coimbatore.

Dear Sir,
Indian Coalfields Committee Questionnaire
Comments.

With reference to your letter of 1st June 1946 the questionnaire is obviously not intended for coal consumers in the Textile industries, but

in view of the Coal Committee visiting Madras shortly, we feel it incumbent for us to take this opportunity of placing our views on the present deplorable position with regard to the high prices compared with those ruling in the pre-war period, irregularity of supplies and the quality of coal we have to accept.

Prior to the outbreak of War, coal could be obtained in regular supplies by Rail direct from the Bengal Coalfields to our Mills Siding at cheaper prices than by the Rail-Cum-Sea route except in exceptional cases when steamer freights were specially cut to meet the real competition and also to obtain cargo for steamers which otherwise have had to be laid up.

The call on Railway rolling stock for War purposes made it necessary for supplies of Bengal Coal for the South Indian Industries to be forwarded by the Rail-Cum-Sea route, mainly to Madras, and although we realise that prices generally had to be increased due to War conditions, there is, in our opinion, no reasonable excuse for Government permitting the prices for coal and also steamer freights to be enhanced to the present exorbitant rates.

We give below the prices for Coal paid by us for delivery at our Mills in Madras during the period 1938 to 1946, from which you will notice that our yearly payments for this one essential commodity only have increased from approximately Rs. 8,47,687 for the year 1938 to Rs. 26,01,843 the latter being based on the present price paid by us.

BENGAL COAL PRICES

Cost of Tons 54,000 Coal, Approx. consumption per year.

	Rs.	A.	P.		Rs.	A.	P.
1938	15	11	2	per ton	8,47,687	8	0
1939	14	9	5	per ton	7,87,781	4	0
1940	18	13	0	per ton	10,15,875	0	0
1941	20	15	2	per ton	11,31,187	8	0
1942	18	8	0	per ton	9,99,000	0	0
1943	20	9	4	per ton	11,11,500	0	0
1944	46	13	0	per ton	25,27,875	0	0
1945	49	14	6	per ton	26,94,937	3	0
1946	48	2	11	per ton	26,01,843	12	0

It is, presumably, the Government's intention to endeavour to bring down prices for all commodities to a reasonable level and to attain this object we suggest:—

- That the pit head costs for Coal at each individual Colliery be carefully checked and prices fixed accordingly with the usual extras allowed for the higher grades of Coal.
- Special attention be given to speedily increase the quantity of Railway wagons etc. for transporting Coal direct from the Collieries to South India. It may be noted that Coal by the all Rail route from Bengal to our

Madras Mills Siding costs about Rs. 30 per ton whereas it is about Rs. 48-8 per ton by the Rail-cum-Sea route.

In addition to the extra cost the loss in transit is greater by the Rail-cum-Sea route due to extra handling of the coal, which is unavoidable.

(c) Further disadvantages of Coal being transported by the Rail-cum-Sea route are :—

- (1) Various grades of Coal, presumably from different Collieries, are mixed in the shipments to Madras with the result that although payment has to be made at an allround price fixed at Calcutta, some of the consumers may receive only the inferior grades of Coal, it being dependent on whether or not the wagons allotted to them are loaded from hatches containing inferior, superior or mixed grades of Coal.
- (2) The difficulty of arranging for suitable steamers at Calcutta causes supplies to arrive at Madras at irregular intervals, whereas if sufficient wagons are available despatches can be arranged at the Collieries to ensure reasonable regular arrivals at destinations.
- (3) Due to insufficient wagons being supplied where steamers are discharging, it is necessary for a portion of the cargo to be loaded into Port Trust wagons and the Coal stacked in the Port Trust for delivery as and when Railway wagons are available. This extra handling causes further loss of Coal and also increases the price to the consumer by about Rs. 2-4 per ton for wagon hire (Port Trust haulage), weighing, unloading, and stacking on plots and reloading into wagons.

Yours faithfully,

The Buckingham & Carnatic Co. Ltd.

(Sd).....

Director,
Managing Agents.

ORAL EVIDENCE OF MR. N. BARLOW REPRESENTING THE SOUTH INDIA MILLOWNERS' ASSOCIATION, MADRAS.

The complaints of the Buckingham Carnatic Mills regarding the coal supplied to them are high prices, bad quality and the difficulty in getting regular supplies. As regards quality, in the Carnatic Mills coal is utilised for providing steam for two Prime Movers, one an engine and the other a turbo alternator. With our pre-war quality of coal with a calorific value of over 12,500 BTHU both these Prime Movers were driven without difficulty. The average calorific value of recent supplies of coal has been as low as 10,494 BTHU's

with the result that it has been impossible for us to maintain sufficient steam to drive the turbo-alternator, and substitute supplies of electrical energy have had to be taken from the public supply. This, in itself, is not objectionable, but as the Madras Electric Supply Power Station is at present overloaded, the stoppage of the Carnatic Mill turbine owing to bad coal has had serious repercussions and the Electrical Engineer to the Madras Government has been compelled to postpone applications for extensions of electrical supply and to refuse further applications for electric supply.

In addition to this, the bad quality of coal has caused trouble with our boiler labour and on several occasions we have been threatened with strikes.

The coal sent by sea costs considerably more but the Mills have no control over the mode of despatch. The average cost of coal during 1945 was Rs. 49-14-6 but it is not possible to give precisely the difference in cost by the sea and the rail routes.

The price fixed at present for coal is excessive. It is true that there has been some increase in the price of the finished products but that is far less than the increase in the price of coal.

The question of using oil in place of coal has been under consideration and it is expected that the Buckingham Carnatic Mills will change over to oil in about 18 months. New boilers suitable for burning oil are being installed. The initiative in regard to the change-over came from the Textile Commissioner. Coal was certainly cheaper than oil before the war but oil fuel is cleaner and very much easier to transport. Besides it gives no smoke and the boilers need fewer men to attend on them, as oil works almost automatically. The dependency on imports with regard to oil is not considered to be a matter for anxiety. So far as comparative costs are concerned, oil will probably be obtainable at Rs. 50 per ton as compared to Rs. 49 per ton of coal.

54. MEMORANDUM TO THE INDIAN COALFIELDS COMMITTEE, 1, COUNCIL HOUSE STREET, CALCUTTA, ON BEHALF OF THE ALL-INDIA MINE-WORKERS' FEDERATION (AFFILIATING ALL MINE-WORKERS UNIONS UNDER ALL-INDIA TRADE UNION CONGRESS)

The All-India Mine-Workers' Federation welcomes the setting up of the Indian Coalfields Committee which it is hoped, will go thoroughly into all problems facing Coal Industry and trade, for the last time before definite and prompt actions are taken by the Government of India, to implement the recommendations of the Committee so far appointed.

The All-India Mine-Workers' Federation, federating all the coal-mine workers' unions affiliated to All-India Trade Union Congress has however to offer the following remarks, on the setting up of the Committee, its Composition and terms of reference.

Quite a number of committees have been set up by the Central and Provincial Governments during the last twenty-five years to enquire into the problems facing Coal Mining Industry and trade on the one hand and Colliery labour on the other. These Committees have made suitable recommendations but none of the Governments concerned have implemented the major recommendations which were made by these Committees.

Compulsory sandstowing, elimination of contract system, basic minimum wage for the labourers, extension of Payment of Wages Act to the Mines which have been recommended by these Committees for safety of Workers and workings, for conservation of coal and for building up a settled and contented labour force for the coal mining Industry are some of them. One Committee appointed by the Government of Bihar just after the outbreak of the War, it is understood, made some recommendations which have never been published.

In such circumstances, people are naturally sceptical of important and comprehensive legislation arising out of the recommendations of the present Committee. There is genuine feeling that setting up of the Committee will be made into another excuse for the Government of India to hold-up or delay any comprehensive legislation which experience of last quarter of a century in general and of the war years in particular urgently call for.

As regards setting up of the Committee without any representative of the Coalmining population the most important element in coalmining Industry the All-India Mine-Workers Federation, has to point out that such a representative should have been included on the Committee in view of the representations made on the subject, by the Federation and in view of the far-reaching effect on Colliery Workers which any comprehensive legislation may have. Non-inclusion of a representative of colliery works therefore has left room for improvement of the composition of the Committee and has confirmed once again the view widely held by Colliery Working population that Government of India is set on a course of appeasing colliery employers at the expense of the coalmining population and the Community at large.

As regards terms of reference of the Committee the issue of Nationalisation and *modus operandi* of taking over the coal mines by the Government of India should have, we think, formed the main subject matter for consideration. The present memorandum will try to show that the various problems of conservation of high-grade metallurgical and steam coal, of colliery fragmentation, of opening up of new fields economics of coal Industry and stabilisation of coal prices, which constitute the terms of references of the Coal-fields Committee, can be satisfactorily solved only if the Government of India takes the immediate, necessary and major step of nationalising the coal mines. And this will also accord with present political evolution in India and abroad. The major recommendation of the two Committees in 1920 and 1937 was compulsory sandstowing as

much for the safety of Workers and mine-workings as for maximising extraction of coal and its conservation has not been given effect to, by legislation. It has to be pointed out that the rate of accidents in Indian Mines is very high—almost double that in Great Britain—and by far the largest number of accidents take place due to preventable reasons such as fall of roofs and sides.

The work of extraction of coal from pillars is increasing year by year, thus increasing the risk of coalmining as a whole. In the coming months when machinery is introduced in coal mines as spokesman of some Mining Associations say, the accelerated tempo of work will lead to much more rapid formation of pillars and an equally rapid depillaring in other areas. Both these will make for higher accident rates in near future unless compulsory sandstowing is introduced at this late stage, from safety point of view alone.

The needs of safety and conservation, however, happily go together, so far as this sand stowing is concerned. The All-India Mine-workers' Federation accepts as substantially true, the problem of Conservation of metallurgical coal as put in the Minute of Dissent to the Coal Mining Committee by M/s. Nag and Krishnan.

Because of the thickness of seams and their proximity to one another, the methods of extraction in vague allow only 50% recovery, the balance representing losses in Sectional working, in boundary and panel barriers, pillar extraction, collapses and fires. At present the average annual production of good quality coal is around 20 million tons and of good cooking coal is roughly 11.5 million tons. Calculated on the above basis and including 50% loss in recovery all our good quality coal will last for 122 years while good coking coal will last only for about 62 years.

In practice the abovementioned periods are likely to be even shorter as with Industrial development the consumption of all coal is bound to increase.

The reserves of iron ore estimated at about 5000 million tons in India, far exceeds the available deposits of metallurgical coal.

Paras. 127-128 of the Coal Mining Committee's report (1937) indicates that in 1936 on an optimistic computation the life of coking coal of good quality was 62 years and of non-coking coal of good quality was 99 years.

The Report goes on further to say "The annual production of good coking coal is now about 13 million tons, but the iron and steel industry and Coke batteries absorb only about 2.5 million tons of this output, the remaining 10.5 million tons of coal being used for steam raising. If the use of coking coal were prohibited by law for any other than metallurgical purposes, the collieries producing the above 10.5 million tons will have to be shut down and either be adequately compensated or acquired by the State. The demand for good quality steam coal would then be more than doubled and the life of the reserves would be

shortened to a period little better than that of the reserves of good quality coking coal. It is possible of course that part of the increased demand for steam coal would be met from the comparatively inferior qualities, but with prices at anything like the present level, the bulk of the demand would probably be transferred to good quality coal.

Moreover the question of conservation of high volatile coals of Raniganj series which are particularly suitable for hydrogenation a process which with the even more limited reserves of oil in India will before long have to be more generally adopted, remains to be satisfactorily tackled.

It is perhaps not necessary to argue why mine workers are vitally interested in the safety of workings as in Conservation of coal to be the basis of an expanding coal mining Industry which any planned development of India's resources will call for.

But so many sectional and conflicting interests in Coal Mining Industry and particularly in Coal trade, operating commercial mines as well as 'captive mines', linked up with Railways or Iron and Steel Works or Jute, Cotton, Tea or other Industrial and Financial interest mining different grades of coal at different centres, and catering for competitive markets and growth of concentration of coal property in fewer hands had put up organised resistance to compulsory sandstowing all these years and the Government of India had to come down to appease one or other of these interests.

Moreover such a necessary legislation as compulsory sandstowing in the present phase of coal mining whether from the point of view of safety or conservation comes up against insurmountable difficulties under the present conditions of private ownership, such as compensation for shutting down certain mines, compelling Iron and Steel interests to buy up adequate reserves of metallurgical coal bearing property, calling upon State Railways to shut down some of its collieries producing metallurgical coal or the question of financing compulsory sandstowing, the extent of contribution by the Colliery owners producing different grades of coal, the question of reimbursing those colliery owners who have their aerial ropeways.

The difficulties to a general adoption of compulsory sandstowing are increased by severe price fluctuations and internal cut-throat competition which Coal Industry has to face. And in the present perspective, this internal cut-throat competition is likely to be supplemented by competition from outside, by petroleum, gas and electricity.

The trend of coal Mining Industry has been towards Concentration of production in larger units, of stepping up output of those varieties of coal, which require conservation and by driving smaller units producing inferior grades of coal out of the Industry. Thus the problem of conserving high-grade coal assumes acute urgency from both these ways. The following figures will illustrate :—

(P. 242, Report of the Coal Mining Committee, 1937).

TABLE I.—The figures from above have been collated here.

	1919			1935		
	Total No.	Expressed as percentage of total No. of collieries.	Qty. of coal expressed as % of total coal produced	Total No.	Expressed as % of total No. of collieries	Qty. of coal expressed as % of total coal produced
(1) Total No. of collieries	640	...	...	397	...	...
(2) No. of collieries raising monthly						
(a) up to 1,000 Ton	288	49	6.3	132	34.3	3.4
(b) over 1000 Tons and up to 5000 tons	213	36.3	34.7	181	47.0	32.1
(c) over 5000 tons	86	14.7	59	72	18.7	64.5

TABLE II

Collieries raising coal

(a) By hand labour or mainly hand labour	251	42.7	7.8	76	19.7	1.7
(b) Steam power only or mainly	325	55.4	84.6	285	74.0	77.9
(c) Electric power only or mainly	11	1.9	7.6	24	6.2	20.4

TABLE III

(a) Limited companies	215	36.6	68.5	157	41	74.7
(b) Private companies	372	63.4	31.5	226	59	25.3

These firstly show that number of collieries has decreased during the period from 640 to 397 or by nearly 40%. Although the output of coal in 1935 was less than in 1919, by 1938 the lag has been more than made up and the larger collieries producing more than 5000 tons coal per month just 18.7% in number were accounting for 64.5% of coal.

Table II further strengthens the impression that during this period coal mining was getting concentrated in larger units. In 1919 collieries using electric power 1.9% of the total in number were producing 7.6% of the coal. By 1935 such collieries using electric power increased in number and formed 6.2% of the total and was producing 20.4% of the total coal mined. During the same period Joint Stock Companies made headway

as regards production although were reduced in number absolutely speaking. If the period was one of 'Coal Crisis' and 'Coal War' internationally, in which U.S.A., Germany, U.K. and Poland vigorously competed with one another for retaining and expanding their coal trade, the same coal crisis and coal war was expressing itself in incipient forms in India broadly speaking between Joint Stock Companies and Private Companies and between Collieries producing superior grade of coal and inferior grade of coal, in which the latter were losing ground almost year by year. This also synchronised with price cutting in coal trade, which will be clear from the following table.

TABLE IV. (Pages 233-34, Report of the Coal Mining Committee).

	1920	1925	1929	1935
(a) Total quantity of superior grade coal in Raniganj & Jharia Coal-fields	10.2 Million tons.	12.0 Million tons.	14.2 Million tons.	13.9 Million tons.
(b) Expressed as per cent of the total quantity of coal produced	72.9%	74.7%	81.6%	86.3%
(c) Total quantity of inferior grade of coal produced	3.9 Million tons.	4.2 Million tons.	3.2 Million tons.	2.4 Million tons.
(d) Expressed as percentage of the total quantity of coal produced	27.1%	24.3%	18.4%	13.7%
(e) Average unweighted prices of coal of Jharia and Raniganj pit mouth value	Rs. 5/12/- per ton.	Rs. 6/4/- per ton.	Rs. 3/10/6 per ton.	Rs. 2/8/6 per ton.

Thus the concentration of coal mining in fewer units and introduction of Machinery and electric power, increasing proportion of the superior grade of coal mined relative to the total coal raisings. Competition and undercutting of prices which showed itself in 1928-29 (before the onset of the general economic depression) went hand in hand and synchronised with the consolidation of Joint stock Companies, which achieved preponderance in coal Industry, with Managing Agency or Contract as the dominant System. Royal Commission of Labour in 1932 found that 80% of coal in State Railway Collieries, 70% of coal in Jharia and 50% coal in Raniganj was being mined under contract system. After amendments to the Companies Act, 1935, Managing Agency system is to some extent displacing contract system. Establishment of a Central Recruiting Agency during war years is likely to further this tendency. In State Railway Collieries on the other hand Contract system has grown, where malpractices and corruption as a result of this extension and operation of contract system has become a by-word.

The system of operation of coalmines had profound effects on coalminers wage-earnings and standard of living on the one hand and safety of coal mine-workers on the other. Serious accidents which shook the mining world particularly during 1934-37 was a culmination of the process of private mining gone amuck, without any let or hindrance

by the Government of India, who on the approved principles of Laissezfaire maintained a 'majestic impartiality' between the Employer and the employee or at best appointed a Committee or another if things went too far, as in 1937.

The following extracts from the Report of the Coal Mining Committee 1937 with non-consecutive lines pieced together read thus :—

" In 1935 74.75 % of Raniganj and Jharia production was raised by limited companies formed under the Indian Companies Act, 1913. These Companies are directed and controlled by business firms in Calcutta described in their articles of Association as Managing Agents. They are usually remunerated either by a fixed percentage on the gross proceeds on all coal sold plus a percentage on other transactions or by a commission on raising plus a fixed monthly sum for office expenses or by a fixed percentage on dividends and bonuses paid to shareholders plus a fixed monthly sum for office expenses. All three methods place a premium on high outputs, big sales and large profits and are generally calculated to focuss effort on immediate rather than future gain, it being remembered as well as that these Managing Agents also control mills and other Industrial concerns which benefit by cheap fuel.

" Retrenchment in working expenses has necessarily dictated policy in coal trade and Industry has had to give effect to that policy by increasing output or cutting down costs without sufficient

attention to the mining methods necessary to secure these ends. So far as we are aware no firm of Managing Agents has a technical expert on its Calcutta Staff, but it is from Calcutta that policy of every coal Company is directed in detail with primary regard to commercial considerations.

In page 25, of the Report, the Figures of the chart show that of 'Nine Companies' representative in economic sense, between 1925-1935.

(1) Output has risen by 80%.

(2) Raising cost per ton have fallen from an average of Rs. 5-3-0 to Rs. 2-12-0 i.e. by 46%.

(3) Remuneration of superior staff has fallen on average by 41%.

(4) Total wages have fallen from an average of Rs. 2-8-1 per ton to Rs. 1-6-0 per ton i.e. by 45%.

(a) Underground wages have fallen from Rs. 1-9-7 to Rs. 0-13-9 per ton i.e. by 43%.

(b) Surface wages have fallen from Rs. 0-7-4 to Rs. 0-3-10 per ton i.e. by 47%.

(5) Depreciation cost has fallen on an average from Rs. 0-9-0 to Rs. 0-3-0 i.e. by 66%.

(6) Interest charges have fallen by 75% and Calcutta charges by 41%.

"The earnings of miners and colliery labour are already ridiculously low and now with women out, the family-earnings will be still lower remarked the President of National Association of Colliery Managers. He might have added that if accidents involving large loss of life continue, the diminution in the available supply of labour may be such as to embarrass the coal Industry.

"The efficiency of labour has not apparently deteriorated, because the quantity of coal annually produced per person employed above and below ground increased from 113 tons in 1926 to 128 in 1935. Risks have however been taken which would not have been possible with less ignorant labour.

"Out of 66 coal companies, with an aggregate paid up capital of 623 lakhs 32 declared no dividend figures for 9 were not available, one company paid 65%, two 22½%, one 18½%, one 17·6/7%, two 15% and the remainder between 2½% and 12%. In these cases prices have not been too low to pay dividends, but have been too low to permit of adequate wages or improved methods to prevent avoidable waste".

What emerges with complete clearness from the above is that under the present nature of ownership, management and control of coal Industry in the competitive market it inevitably operates to the grave disadvantage of the safety of the colliery worker and workings, of conservation of coal and of the wage earnings, efficiency and standard of living of the coal miner.

One word about the contract system for even now it is a potent force for evil in the Coal Mining Industry. Today about 95% of the Coal raised in State Railway Collieries, is raised under Con-

tract system, with all its implications. In Jharia and Ranigunj though the extent of Contract system is less today compared to the days of Whitely Commission—and Managing agency system, has to some extent displaced the usual contract system, about 40% of coal is being raised under Contract system in Jharia and about 30% of coal is being raised by these Contractors in Ranigunj Coalfields. Contractors are impelled by the same basic urge as the Managing Agents towards maximum of profit in minimum of time partly at the cost of adequate safety measures, partly by sacrificing conservation needs of the Coal Mining Industry but mainly at the expense of the Miner's wage-earnings, and his standard of living which play havoc with his morale and is the main factor behind his degenerating into casual labour. The contractor is still less bothered than the Managing Agent by the technical needs of the coal mining and not bothered at all by the market conditions.

The Coal Mining Committee observes thus about the Contract system :—"There is a strong objection to a Coal Raising Contractor, who is usually paid fixed rate per ton of coal loaded into wagons and whose rate may cover the cost of getting and raising coal, maintenance of haulages and tramways, setting of timber and supports, pumping and all supervising staff including in some instances the Manager. Such contracts are usually terminable in a short period. It is obvious that it is in the interests of the contractor to raise coal as cheaply and in as large quantities as possible, while the safe workings of mines is of little if any importance."

Apart from the above the Raising Contract system introduces a dual responsibility and in practice reduces the responsibility of the Manager of the Coal Mines towards wage payments, housing, sanitation, and other matters connected with Labour Welfare: This indirectly prevents development of a stable labour force. The Contractor builds up a floating reserve of labour who are at the command of the contractor and who are in excess of the number required or usefully employed. thus tubs or working space run short and miner's earnings suffer. And serious overcrowding both at the working face and in miner's barracks develops. In Kargali State Railway Colliery where contract system has revealed at its worst, the extent of overcrowding has reached alarming proportions. Four families have been herded into one room of say 12 ft. by 14 ft., with their kitchens in four corners of the room. Fourteen persons in one such room split up in four families. Rapid turnover of the mining population goes hand in hand with this sort of housing conditions.

Over and above that, Contract system entails corruption and malpractices, often directly at the cost of the colliery workers, which takes the form of misappropriation of his dearness allowance or grain rations. The system tends to affect morale of a section of the management who connive with the contractors in these malpractices. Then competitive bidding for contract forces down the rates of contracts at which tens

ders are accepted and along with that the wage rates and wage earnings. In Bokaro State Railway Collieries for instance, this competitive bidding had forced down the rate from Rs. 1/14/- to .7/- per ton in course of a decade. This is a fundamental factor for making labour force unstable and keeping them under so wretched conditions.

Cumulative operation of the Managing Agency system and Contract System in India, has led to

deterioration of the situation, to an extent which recoiled on the Industry itself during the phase of the war.

The following comparative chart of pit mouth value of coal, relative wages and efficiency of coal miners, in different countries will speak for itself.

TABLE IV. (for the year 1936.)

Name of the country	Average pit mouth value of coal in Rupees	Value of Indian coal expressed as per cent of foreign	Output per head of miner in tons	Average daily earnings	Output per head of Indian Miner as per cent of foreign miner	Daily Average earnings of Indian Miner as percent of foreign
	Rs.		tons.	Rs.		
1. U.S.A.	6/5/7	29.5%	611	10/11/4	18.4%	5.3%
2. Britain.	9/3/6	42.7%	298	7/2/10	41.6%	9.1%
3. Poland	7/0/2	47.3%	538	4/4/-	23.0%	14.7%
4. Belgium	6/11/9	40.0%	228	.....	54.4%	25.2%
5. Japan	6/0/3	45.3%	210	2/8/8	59.9%	25.0%
6. India	2/11/3	...	124	0/8/10	...	...

The figures will show that the wage earnings of the Indian Coal miner was lowest in the world and far lower relatively than his efficiency would justify. And then the low output per head of coal miner is an index of the low level of technical equipment of the coal mines. And this absolutely low wage earnings, long hours of work and "black hole housing", insufficient water supply in volume and in chlorination, poor nourishment had together before the war, had already reduced him to a state of serious mal-nutrition.

In 1938 a family budget enquiry revealed that total intake of food of a miner had a calorific value of 2694.4 i.e. a deficiency of 23% with 3500 calories daily needed in a humid climate of India, as the minimum. The cost of minimum nutritional diet alone in pre-war prices (1938) amounted to Rs. 6/- per week for a family of three, while weekly wage-earnings of miner were only Rs. 2/6/-. Naturally the miner was left with little to spend on clothing or other amenities

Absenteeism is not due as some Employers hypocritically suggest to absence of miners' wants or natural idleness but because of a serious and chronic state of malnutrition because of the above factors. Under the stranglehold of Managing Agents, Raising Contractors on the one hand, the Railways and Iron and Steel Interests operating their own captive mines on the other, with surface-scratching, get-rich-quick individuals operating in between, with little or no check and control by Government from above, or organised pressure of the Colliery workers from below, the coal mining industry was left to the operation of blind forces.

The safety of the Mine-workers and mine-workings were progressively reduced to marginal level, the conservation progressively deteriorated and coal mining population was progressively reduced to a state of semiserfdom and destitution. Absence of workers' organisation in face of police and employers' terror and to a variety of other reasons, is a major source of weakness for the Industry.

The war showed with complete clearness the feet of clay that Coal Industry has. Production fell. Equipment of mines fell to disrepair and replacement stopped, the miners' standard of living was further reduced and he migrated away from the coal-fields. The Government became for a time helpless, in face of the hold-up of coal production by the Employers to oppose Excess Profits Tax.

Then the period of appeasement began from 1943 onwards. Women were sent underground which in places took almost the form of drafting, virtually conscripted mining labour through grain rationing scheme known as Young scheme and by executive decrees, set up a Directorate of Unskilled labour supply to bring sufficient labour force from outlying regions, as a part of a comprehensive Coal Control Scheme under which there was complete control over production and distribution of coal and the employers were given 15% production bonus on the one hand and as a ginger pressure against these employers started Open Cut Coal Mining on its own—all these steps taken by the Government of India proved unavailing and did not mitigate the severity of the coal crisis in face of the opposition of the colliery owners and conflicting coal interests who were jockeying for position as against each other. And the employers hypocritically shifted the blame for this state of affairs either on colliery labourers

or on shortage of transport or lack of equipment or Government control measures.

It is not possible to trace the process of further disorganisation that rapidly overtook the Coal Industry in war years because of a policy of statistical black out which the Government of India pursued apparently for security reasons but which nevertheless strengthened this "surrender-to-the employer" line.

It is clear however that during boom years which the coal Industry has recently passed through with pitmouth value of coal anything between Rs. 8/- to Rs. 12/- the colliery worker was getting anything between 33% to 50% less for his wages in terms of real goods and service in spite of Dhanbad Agreement and Young Scheme and grain concessions and which was a major factor of super-profits which the Industry enjoyed. The net result was that daily intake of calories of the coal miners was further reduced from 2500 calories to 1950 calories.

It therefore appears that employers have got more entrenched, monopolistic concentration has grown at the cost of coal conservation, coal industry, safety of workers and workings and above all at the cost of the colliery labourer.

The first step therefore for reorganisation of the Coal Mining Industry should be building up of a settled labour force of its own through an extensive Industrial Housing Scheme in the coalfields specially in Raniganj, Jharia, Bokaro, Giridih and Pench Valley coalfields so that every coal miner is housed during the next ten years. Mining townships with kitchen and courtyard, bath, two roomed houses have been planned out already by the Coal Mines Welfare Organisation, but the efforts in that direction so far have been feeble and the scheme as it stands does not touch the fringe of the problem. The requirements are 1000 cu.ft. of space per head which should be made obligatory on the Industry to provide in its housing scheme. Secondly, adequate supply of chlorinated water to the colliery population say at the rate of thirty gallons per head. Thirdly, a basic minimum wage of rupees fifty per head per month for the fluctuating and migratory character of the mining labour force is more due to the unattractive terms given by the Coal Mining Industry than any innate attraction of the agriculture. In England the earnings of the miner per man shift had risen from Rs. 26-2-8 in 1939 to Rs. 72-0-11 in 1944, with only 30% rise in the cost of living. In India the reverse process had been operating so far as the wages of miners are concerned. With increase in the cost of living there has been a cut in the real wages of the miner to anything between 33% to 50% which led to migration of the colliery workers from the coalfields.

The Committee should therefore definitely reject the myths propagated by the employing interests in Coal Mining Industry "that if you pay the miner more, he works less, that if you educate him, he will refuse to cut coal etc".

Fourthly the Indian Coalfields Committee should definitely make a recommendation about the elimination of contract system and extension of

Payment of Wages Act to coalfields. The mine-workers' Federation and the colliery workers feel very strongly on the point and hold that there is no technical or real need which the contractors in the coalfields fulfil today and they should be eliminated from the Coal Mining Industry as part of any plan of rationalisation of the Industry.

Fifthly, along with proper supply of consumers goods, net work of canteen feeding should be arranged for countering widespread malnutrition amongst coal miners.

Sixthly, leave with pay, for fifteen days in the year, by reduction of working hours to forty hours a week and by extensive medical aid specially against venereal diseases, against deficiency diseases, hook worm and through mass radiography, the coal miners should be helped back to health.

Seventhly, a scheme of Provident Fund and Insurance against sickness, ill-health, unemployment and old age should be introduced in the coal mining industry without delay which will go a long way towards stabilising labour force. The scale of compensation for accidents should be doubled. Lastly recruitment of labour should be arranged through a net work of Labour exchanges which will even out supply of coal mining labour and eliminate any supposed role which the contractors may had in the long past

The All India Mine-workers' Federation recognise that some attempts in some directions have been made through setting up of a Coal Mines Welfare Organisation in the matter of miners' welfare. But the progress so far has been slow, the scale of welfare planned too inadequate for need of the situation and welfare schemes have stuck up in red tape and routinism.

For instance, three lakhs of rupees which have been provided by the fund towards adult education, do not go far enough, for we want comprehensive education of the Miners' children and more than that of the miner himself in view of the advanced stage of depillaring in Mining Industry and consequent increased risk of mining. The miner should be treated as a skilled worker and should be properly trained for his job.

As regards Labour and Employment exchange, a beginning has been made but the organisation has to be developed further in order to be effective.

The All India Mine-workers' Federation deem it necessary to sound a note of working. In the present context of political changes and economic hardship, the Mining Industry cannot continue much longer as it has done so far based on casual, disease-ridden, exploited semi-agricultural labour force. The above conditions have to be met for the well being of the Industry.

The feasibility of such a scheme is obvious, from a financial and administrative point of view if the Government of India takes the one necessary immediate step demanded by the situation which is comprehensive Nationalisation of all mines in general and coal mines in particular.

After Nationalisation of the coal mines can the Government of India proceed to reorganise the whole industry on up-to-date technique and on scientific lines which necessarily include conservation of coal, safety of worker and workings, building up a settled and contented labour force and thus enable the Coal Mining Industry to meet the demands of a rapidly industrialising India.

The All-India Mine-workers' Federation accept the points made out in the Note of Dissent to the Report of the Coal Mining Committee 1937, by Messrs. Nag and Krishnan. They are :—

(1) Systematic development and working (in other words rationalisation) are possible only under State ownership. The primary consideration of profit-making will be subordinated to sound mining methods. The putting out of fires, stabilisation, maintenance of a proper balance between production from Pillar area and that from Virgin area, can be all done without interference. Work can be done systematically and intensively in a few selected areas resulting in economy. Stowing operations can similarly be concentrated and made economical and not diffuse as will be the case under the scheme proposed by the Committee. (Welfare measures like housing, water supply etc. can be similarly concentrated and a stable labour force can be built up much more economically).

(2) No question of the difficulties of section working and of whether the coal raised is of commercial value can arise. Inferior coal can be properly beneficiated and properly prepared for the market.

(3) Conservation in its broader aspect *i.e.*, applied both to the reserves and to utilisation, is possible only under State ownership. Under private ownership waste in mining can perhaps be controlled, but waste in use cannot be controlled at all. In view of the limited reserves of good coal in the country, State ownership will be the only remedy and the cheapest from the national point of view.

(4) The enormous quantities, running into 250 million tons of coal locked up under the Railways will be released because many of the sidings now in service can be closed following concentration of work in a few selected areas.

(5) Considerable saving could be effected in the present "Colliery consumption" by extensive use of electricity which could be generated economically in central plants by means of inferior coal.

(6) A proper balance between production and consumption can be kept up, overproduction and cut-throat competition which are prominent features of the present market will be eliminated.

(7) Questions which are a constant source of trouble under private ownership *e.g.* adjustment of boundaries, way leave, small properties—will not arise under State ownership. Neither will the difficulties as regards imposition of cess arise as the expenses of sand stowing where necessary will form part of the working costs.

(8) Even with stringent safety measures the safety of life will not receive the full consideration it deserves, under private ownership whose main objective is profit making.

At present one of the worst features of mining in India is the status of labour. Very little attention has been paid to their welfare and education, although education will go a long way towards ensuring safety. Under State ownership labour will be better organised and looked after, as is the case, even now, in State Railway Collieries as compared with privately owned collieries.

(9) The conflicting interests involved—large and small owners, European and Indian lessees, khas and leased properties etc., will disappear.

(10) Under the present system, evasion and breaking of regulations are a permanent feature. With an increase in the number of regulations, as proposed by the Committee, a large inspecting staff will be necessary to inspect properly the 600 coal mines in India and a corresponding increase in office staff and equipment. Under State ownership this expenditure will be reduced because of the concentration of the work in limited areas and elimination of self-interest.

(11) Under State Ownership the consumer will be assured of getting the quality of coal suitable for his purpose at a reasonable price, and will at the same time be protected from unduly high prices which a combination of private enterprise might impose on the market.

The Dissent moreover outlines a series of immediate steps for acquiring the mineral rights of the Jharia and Ranigunj Coalfields and for taking over the mines. The All-India Mine-workers' Federation is however of opinion that the question of payment of compensation for acquiring (mineral) underground rights for charging royalties and for taking over the coal mines require considerable modification in the light of the impending political changes and wide variations of prices of securities and interest rates since the above was written. The All-India Mineowners' Federation is unable to agree that any payment should be made for acquiring Royalty rights and the stand for the Trade Union movement for acquiring the mines has been that such change of ownership should not be in lieu of any monetary payment, which the owners call "Compensation". A supplementary memorandum however will be submitted if those questions require immediate attention, if and when need arise.

The Note of Dissent however makes it clear that the scheme of acquiring the mines and Royalty rights are necessary and feasible from technical, economic and administrative considerations.

The All-India Mine-workers' Federation has to point out that such a change in the ownership of the Industry with all its implications, has become an overriding necessity, political considerations not being the least amongst them.

53. ORAL EVIDENCE OF MR. C. BHATTACHARYA
REPRESENTING THE ALL-INDIA MINE-WORKERS'
FEDERATION RECORDED AT CALCUTTA ON 6TH
JULY, 1946.

Question.—Could you tell us something about the All-India Mine-workers' Federation, its scope, its activities and membership ?

Answer.—Until recently, there was no central organisation of coal miners in India though there are many individual units working locally in Raniganj, Jharia, Giridih, Bokaro and other places. In July 1945, all these units which are affiliated to the All-India Trade Union Congress formed themselves into a Federation. There are units working amongst coal miners, as well as mica, gypsum etc. workers. We have been able to organise coal miners with which you are specifically concerned and bring them under some sort of organisation in Jharia, in Bokaro, Giridih, Raniganj in addition to the States. Then in the C.P. there is a skeleton organisation. The total membership of the All-India Mine-workers' Federation is now in the neighbourhood of 25,000.

Question.—Are the various units under any supervisory control by your Federation ?

Answer.—We are now going to check up their membership, their accounts, their receipts, etc. about which we are issuing a circular.

Question.—In your memorandum you have said that the work of extraction of pillars is increasing year by year. What reasons have you got for saying that ?

Answer.—I had in mind specially Jharia and Giridih coalfields. These two areas are in an advanced stage of depillaring and naturally, therefore, the percentage of coal got from pillars is increasing now.

Question.—You have emphasised the necessity of compulsory stowing. But you have stated that so many sections and conflicting interests in the industry have put up organised resistance to compulsory sand stowing. What are your reasons for such a statement ?

Answer.—Because after all the Government of India has been appointing one committee after another and they are not implementing the major recommendations made by such committees. The 1937 Coal Mining Committee made a major recommendation for compulsory sand stowing. The Federation believes that the various producing interests are very powerful and organized and have resisted the adoption of this because of higher costs. Their interests dictate this. The experience of mining labour has been that the Government of India has on many points during successive stages succumbed to the pressure of these coal 'monopolists'.

Question.—What is your remedy ?

Answer.—There is no way out of the present chaotic condition without nationalisation of the coal industry and that is what the Federation likes to insist. The questionnaires issued have

mentioned compulsion as regards ownership. But I should think that in 1946 the question of ownership and the question of nationalisation of the coal industry should form the basis for enquiry by the Indian Coalfields Committee.

Question.—You have spoken of the increase in accidents in coal mines. Surely there has been considerable improvement in the last 7 or 8 years ?

Answer.—Yes. After 1937 there has been some improvement ; but absolutely speaking the rate of accidents is really high compared to England. And now with de-pillaring going on without compulsory sand stowing, I do not know what is going to happen in the coming months.

Question.—Any decrease in accidents since 1937 is principally due to the more stringent mining regulations which were put into force ?

Answer.—There is no doubt that the mining regulations had been made more stringent, but my point is a different one that in the present conditions of coalmines these mining regulations short of compulsory sand stowing would not go far in preventing recurrence of such accidents.

Question.—You have given us very useful figures about the level of wages. What are your views about the adequacy or otherwise of the present level of wages and various perquisites which are to-day given to colliery labour ?

Answer.—I think the level of wages here has fallen and it is a pity that the Government had allowed such a scandalous state of things to continue. The Government could have easily stepped in 1939 to enforce the minimum basic wage which was recommended by the Bihar Enquiry Committee.

Question.—In view of the price of coal prevalent at that time you think the industry could have borne the extra expenditures ?

Answer.—Yes, I should think so. In 1939 the recommendation was Rs. 35/- as basic minimum wage. At that time the industry was in a position to bear that.

Question.—What is your opinion about the wages to-day ?

Answer.—The conditions have deteriorated. About 40% of the workers' wages have been in fact increased, but the increased cost of living which has risen to about 300% of the pre-war level, has not been compensated by the 50% wage increase and concessions.

Pre-war the mine workers were getting about 2-6-0 per week and after that there was a 50% increase as a result of the Dhanbad agreement. Then those cash benefits of maximum bonus, free supply of rice etc., all were taken into account and the total comes to Rs. 5/15/0, whereas on the basis of the increased cost of living it should have been Rs. 7/15/0 at the least.

Question.—If such is the case, how will you explain the very large increase in the consumption of liquor in the coalfields area ?

Answer.—There is general over-strain and growing mal-nutrition which have to be somehow counter-balanced.

Question.—They apparently spend more money than in 1939. Unless they have had extra purchasing power in their pockets, this could not have been possible.

Answer.—Between 1937 and 1941, the miner alone worked and the entire family lived on his wage earnings. Now all the family members are working. This is a retrogression from all points of view.

Question.—Are you in favour of the State establishing by law some minimum wages for the colliery labour ?

Answer.—That is long overdue.

Question.—In view of the conditions prevailing to-day, what would you consider to be an adequate minimum ?

Answer.—The demand is for a basic minimum of Rs. 50/- and Rs. 1/8/- per ton of coal raised and loaded into wagons.

Question.—You have no objection to linking up wages with production, provided the miner gets a minimum ?

Answer.—Whether he works or not ? I won't put it that way. I would like the miner to get some minimum, but my point is that he is not getting the minimum even when he is putting in sufficient work.

Question.—The output per miner has decreased from 144 tons per year in 1936-37 to 92 tons now. If that state of affairs continue, then at the rate of Rs. 1/8/- per ton of coal cut and placed in the tub, it will not mean any extra wages to the miner.

Answer.—Between 1919 and 1936, the output rose remarkably per man-shift from 112 to 144 tons. Now this drop during these war years has been brought about by a variety of circumstances shortage of tubs, shortage of working places, etc. Too many workers have been crowded in working places and this over-crowding at the working-face is particularly noticeable in some of the pits of Giridih and Jharia. That reduces the output per head. The workers can certainly cut more coal.

Question.—Could you tell me whether your Federation would be agreeable to consider linking of production with wages ?

Answer.—Not till a basic minimum is guaranteed.

Question.—Will not the basic minimum be a sort of inducement to idleness ?

Answer.—I don't think so at all. One of the main reasons for the fall in putup is the deliberate hold-up of production by the vested interests for fear of E-P-T-, etc. and unfortunately the practice has been to shift the entire responsibility for this state of affairs on to the head of the coal miner. Another reason for the fall is that when coal mining operations progress, the lead increases, the mechanical haulage is not led up to the coal face. In some cases, it is almost a quarter of a

mile from the coal face. There is also shortage of coal tubs at some places, and restriction of working face.

Question.—Could you tell us what should be the basic factors that should be taken into consideration in fixing the basic minimum wage ?

Answer.—Firstly importance of the industry, secondly capacity of the industry to pay a basic minimum wage, thirdly the risks attendant on the operation of the industry. And I have to emphasize that this risk in the colliery is increasing year by year.

Question.—Output of work should be one of the elements ?

Answer.—After a basic minimum is guaranteed.

Question.—Would you not also consider the standard of living of the prospective miner ?

Answer.—I think the standard of living of a prospective miner in his village home will be necessarily different from the one he has to adopt while working in a coal mine.

Question.—In order to arrive at a proper and decent minimum basic wage and in order also to see that the industry can bear the wage we have to find out how far the standard of living of the recipients of the wage varies. Would you not link it up with costs of living, family budgets ?

Answer.—Of course.

Question.—Would you then agree that the minimum basic wage for the miner should be different from the minimum basic wage for the steel worker because of the difference in their present standards of living ?

Answer.—No. I won't agree to that at all. The minimum basic wage of the coal miner has to be determined by the capacity of the industry, physical needs of the coal miner, the intake of coal, some nutritional standards, the risks attendant on coal-mining etc.

Question.—And if in times of depression the industry cannot pay the minimum wage ?

Answer.—If there is State control, State ownership and State operation of the coal mining industry, there will be no cut throat competition and there will be no depressions.

Question.—You have expressed yourself definitely against the contract system.

Answer.—Yes, that is one of the curses of the coal industry. Firstly, it means that contractors are being paid for virtually not doing any work. Secondly, the contract system deprives the miner of a large share of his earnings. Thirdly this introduction of dual responsibility of management and contractors has a very bad effect on the management itself. In practice the management seems to leave everything to the contractors and the result is that on welfare work and other matters the miner suffers. Fourthly it seems to affect the morale of a section of the management. Fifthly risks are taken, for the contractors are concerned only with large outputs of coal. Sixthly, lot of

money is squandered on wrong developments. I would point out for instance the case of Jalkuti Hills. This was given to a contractor for cutting over-burden, and they did not get even a single ton of coal.

Question.—Would you like some other means of recruitment ?

Answer.—Employment Exchange.

Question.—Conducted by the Government?

Answer.—Yes.

Question.—You are aware of a special recruiting agency in Raniganj. Is that any improvement on the contract system ?

Answer.—Of course there is some improvement. But I would like the Labour Exchanges to function and not leave the question in the hands of individual firms.

Question.—Suppose your recommendation about fixing a minimum basic wage coupled with a certain rate per ton of coal is adopted, what effect will it have on the migratory habits of the present miner, that is his habit of running away to his home after two or three months work ?

Answer.—I would like to kill the myth which the employers have been sedulously propagating that if you pay a miner more he works less and because he earns some money he goes home. I think he goes away because of the unbearable conditions that are prevalent in the coalfield. I will give Kargali for instance. In a single room of 12×12, four families and on an average 14 to 16 people have been huddled. Pigs and cows live much better. If there is a single case of cholera they will die like flies. How can they protect themselves when all of them are huddled like this ? In the circumstances it is no wonder the miners go to their villages periodically.

Question.—So you think that a long-term programme of improving the amenities of labour in the coalfields area, plus a substantial increase in the earnings of the labourer, plus a general spread of education, all these measures will make the miners a settled community ?

Answer.—I do think so. There is no reason why 90 to 92 per cent should not be settled.

Question.—Can you suggest any short-term measures ?

Answer.—Yes. In Giridih, 80 per cent of the labour is settled because they have got some land where they are doing some agricultural operations. If we link them up with land, increase their wages right now, introduce social insurance or some sort of Provident Fund scheme, provide them with better houses, arrange better water-supply....

Question.—Do you think there is any truth in the allegation that importation of labour from other districts has been responsible for some of the local or indigenous labour running away from the mines ? Do you advocate regionalisation in the matter of labour supply ?

Answer.—Yes, I think that local labour should, as far as possible, be settled, because if we bring

too many communities from different parts of India to a particular spot naturally friction occurs much to the detriment of the coal industry.

Question.—You must be aware of the great discrepancy between supply and demand of coal today. It has been suggested to us that the only way to make up this shortage is to increase mechanisation in the mines. Would that be acceptable to you as a Federation ? It may mean the displacement of certain types of labour and a certain degree of unemployment which is inconceivable under present conditions.

Answer.—The Federation would have no objection to the adoption of mechanical means which would assist in increasing the production of coal according to technical people, but the Federation will object to the growth of unemployment amongst the coal-miners. If there be unemployment, there will be widespread unrest and that is a point which I think the Committee should not lose sight of.

Question.—You don't approve of the reversal of the policy of prohibition. Could you now agitate for reversion to that policy ?

Answer.—I cannot say off hand. On this matter I will have to consult other members.

Question.—It seems to me that you are not in favour of smaller mines being amalgamated.

Answer.—That is because I think that will be a movement away from nationalisation.

Question.—Apart from the question of nationalisation, are you more in favour of smaller mines than larger mines ?

Answer.—Concentration naturally leads to some sort of monopoly and monopoly is not liked by the Federation. I think the industry is ripe for nationalisation.

Question.—Could you tell us from your experience whether broadly the labour receives a better deal at the hands of the bigger mines or at the hands of the smaller mines ?

Answer.—There is not such to choose between them. Some of the big collieries have provided one or two central regional hospitals. Tatas and the Bengal Coal Co. have made some improvements. As regards housing, Tatas have provided better houses. We aim at a much higher housing standard and for that centralised approach with co-ordination by Government is necessary.

Question.—How do you explain the fact that while before the war the average number of days worked by a miner was 4½ to 5 days a week, today it has been reduced to 3½ to 4 days.

Answer.—Because there is a growing state of malnutrition. The intake of calories now is about 1700 against the normal of about 2500 calories.

Question.—It has been represented to us that the drop in the average number of days worked per week is due to the fact that the miner gets sufficient money in 3½ to 4 days to be able to live as he is used to live for the rest of the week.

Answer.—That is a myth.

Question.—Did you have any difficulty in organising trade unionism in the coalfields ?

Answer.—Yes, lot of difficulty. First, the employers would insist on their right of private property and so on and would try to see that nobody trespasses. Secondly union workers are not allowed to come directly in contact with the administration. The Police either locally or as a part of high policy takes the line of trying to disrupt any labour movement. The contractors are also interested in keeping us off.

55. WRITTEN EVIDENCE SENT IN BY THE
BENGAL ROYALTY RECEIVERS, ASSAM.

QUESTIONNAIRE II

PART II

OWNERSHIP AND MANAGEMENT

Questions 7, 8 and 9.—Private ownership of mineral rights in permanently settled areas has not resulted in any uncontrolled grant of leases as alleged nor has it been in any way responsible for the dissipation of the country's coal resources.

If one looks back to the early days of coal mining and tries to trace the history of the earliest leases that were taken by the pioneers in the Ranigunj Field he will find that advantage was taken of the ignorance of rights to mineral of the Zamindars and landlords of the locality and leases were taken without any mention therein that coal and minerals were intended to be exploited. The leases were mostly Pattani, Derpattani, Sepattani or some such form of Mokrari Mourashi Pattahs containing the usual provisions prevalent in those times. The usual idea was that all rights to the land taken, from the SKY to the centre of the EARTH passed in such Pattahs. The early pioneers accordingly took their leases in one or other such form of Pattahs on permanent and unchangeable rent basis and started exploiting the coal and other minerals in whatever manner it suited them. The landlords after grant of such Pattahs could not exercise any control over them as according to the then conception of law a landlord after having granted such a Pattah had no right to interfere in any way as to the manner in which the tenant was to enjoy the property. The landlord's only right was his right to receive the rent. It will be seen that practically all earlier leases were of this nature and the lessees continued exploiting the COAL & OTHER MINERAL resources without any check or control and it cannot be said BY ANY STRETCH OF argument that the landlords were in such cases in any way responsible for bad mining and unsatisfactory conditions generally prevailing in the Coal Mines.

In later years of course when the landlords began to realise the value of the resources that they were parting with, the form of leases took the shape of coal mining leases with provisions for minimum and other royalties and terms and conditions were also introduced with an eye to the maximum utilisation of the available coal

resources of the land and consequent yield of the maximum possible royalty income from the operations conducted in such lands. But even then the landlords had no precedent and experience to guide them in the matter of safeguarding their interest nor did the Government of the country take at this time any active interest in these matters and shape any well-considered policy and legislate and frame any rules and regulations which were likely to prevent unsatisfactory state of affairs arising out of unworkmanlike mining operation by the lessees. From the point of view of the landlords, these leases were also more or less of permanent nature (999 years) and although they contained many protective provisions binding the lessees actual interference and enforcement thereof on the part of the landlords except through the help of law Courts procedure whereof are always dilatory, were always extremely difficult.

There is no dearth of instances, in spite of specific provisions in the leases, of landlords or their agents not being even allowed admittance into the Mines to look into the state of things prevailing therein. It cannot be said that the landlords were not alive to their rights and privileges or that they had no urge or initiative to protect their interests but it must be remembered that practically all the earlier lessees were big European concerns and the collieries were chiefly managed by Europeans and it was extremely difficult in these days for the landlords and their agents to go into the Colliery premises and keep a check on the manner in which the property was worked and exploited.

The condition of things prevailing in the country in these days and the attitude of the management of coal mines always prevented the landlords and their agents from interfering in the working of the Mines and they not being equipped with any executive authority had naturally to rest content and be satisfied with their royalty income having no alternative other than the enforcement of the provisions of their leases through the very slow and dilatory processes of the courts of law. By far the greater part of the unsatisfactory state of things prevailing in the Coal Mines and Coal Mining areas today occurred at this period owing to the absence of any precise legal pronouncements on the respective rights and powers of the lessors and the lessees under their leases. Since the establishment of the Mines Department by the Government and the promulgation of the Mines Act and rules, a certain measure of check and control on coal mining was brought into being, with the only objective of achieving safety in coal mines and to the men employed therein. But no policy was enunciated nor any guidance given as to the manner in which the valuable resources should be exploited and on the precise relationship between the lessors and the lessees.

With the lapse of time and the experience gained thereby the landlords have remodelled their leases and these leases have taken a completely different shape today with terms and conditions for controlling the actual mining operations which of course are based mostly on the conditions

stipulated in the Mines Act, as in force now. The hands of the landlords have also been strengthened by certain recent authoritative rulings arising out of a number of protracted litigations whereby the rights to minerals under the various Pattahs or mining leases have to some extent been clarified and the respective rights, powers and privileges of the landlords and the lessees, placed on a fairly sound footing and the landlords have been placed to some extent in a position to exercise a measure of control over their lessees on the manner of working their property. The position however is not yet clear. It is long overdue and a comprehensive legislation should be made clarifying for all time to come the respective rights, powers and privileges of the landlords and the lessees, particularly concerning mineral rights and the leases already made and to be made in future. It will therefore be seen that the landlords owning mineral rights have been in no way responsible for the alleged bad mining and fragmentation of holdings and other blames that are now being laid at their door and it will be seen that the existing law of the country has at every step hampered and impeded them in any honest desire that they may have or had to protect their interests and keep a check and control on their lessees. The law does not allow them to exercise any executive authority in the matter far less a direct control over mining methods and the only course left to them at all times is to seek recourse to law in every matter in which the lessee proves to be recalcitrant.

It will be further seen that in almost all leases granted in the course of the last 25 years there is such a provision as a lessee to work the mine in proper, skilful and workmanlike manner and according to the most approved practice for the time being adopted in similar mines in the Province and in conformity in all respects with the rules and regulations in that behalf for the time being in force and promulgated by Government or other authorities under the Indian Mines Act, 1901 or any re-enactment or modification thereof for the time being in force and so as to raise and obtain the largest output therefrom, but there is nothing in law by which the landlord can take executive action and see to the carrying out of this and similar provisions and it is only a statutory authority that can help in this matter. It has been said elsewhere that the landlord or his agent may not be allowed access in the mine by the management thereof and what other course has he except the help of court to enforce these provisions?

It has been a very rare case where a landlord has leased out an extremely small area of coal land. If history of these leases are traced it will be seen that original leases had been made of large plots and whole mouzas in most cases. It is the lessee and the unsound and not well-thought-out provisions of the Transfer of Property Act (which gives unlimited liberty to the lessee to transfer the whole or any portion of his Tenancy in whatever manner he liked) and the not well-considered policies of the authorities of Govt. in charge of administration of coal mines and the general economic depression that alone are responsible for fragmentations of coal bearing pro-

perties if any and wasteful methods of mining coal. A lessee selling or sub-leasing a portion of his leasehold and the purchaser or underlessee thereof were no doubt always impelled by the profit elements in their transaction. They would not surely be tempted to create a holding that was going to be uneconomical and unprofitable to work. Naturally their tendency would be to make the most out of it and that as quickly as possible. They had no such large ideas as waste of resource of the country and all that at the time. It is most unjust to lay the blame now at the doors of the poor landlords who in no way could be interested in and a party to wasteful and mining and fragmentation of the property if any considering that their one and only interest must be the realisation of their due royalty on the entire coals deposit in the area. It can be pointed out in this connection that even in areas where the state owns the royalty rights over coal deposits conditions cannot be said to have been at all satisfactory so far as wasteful and dangerous methods of mining is concerned (*Vide* page 170, Report of the Coal Mining Committee 1937). The great mistake of the administrative authorities in not formulating a sound coal policy from the beginning and not controlling the methods of mining under a proper legislation are alone responsible for the present state of affairs. Why should the poor superior landlords be victimised now and saddled with blames which were never theirs? No purpose will be served by scrapping all existing order of things without thoroughly exploring avenues of weeding out its faults and improving it. It can only be said with emphasis that such a line of thought cannot be in the best interests of the country. Why should be the sanctity of private rights be always assailed like this? There is no case for the acquisition by the Government of mineral rights. There is no doubt much scope of improvement in the relationship between the landlords and tenants and with that object in view we intend to suggest some improvements in this NOTE and we hope that they will be given due and impartial consideration that they deserve.

1. In the common interest of the superior landlords, the mine owners and the trade there should be a comprehensive legislation modifying and amending the present Mines Act removing once for all the difficulties and disadvantages that exist between landlords and the mine owners.

2. In the first instance the Mines Act should be thoroughly revised and amended with a view not merely to ensure safety in mines but also with the definite object of removing the defective provisions, if any, in existing leases and that solely concerning mining and technical matters. These amendments should also aim at giving a definite guide as to the shape of future leases by the landlords.

The difficulties and disadvantages between the landlords and the lessee are but few.

Whatever there is, are mostly on the side of the landlords because of want of any effective control except through the medium of law courts where the process is long and dilatory.

Some of them may be enumerated below :—

(a) There should be some way of easy and smooth realisation of royalty and other dues of the superior landlord. There is a tendency among certain mine owners to avoid payment of superior landlords dues and artificially reduce their cost of raising to enable them to make an unhealthy competition with such mine owners who make it their principle to regularly meet all their commitments. Such defaulting mine owners seek protection in the extremely costly and long delayed legal process through which the superior landlords must pass to recover his dues. The existence of the right of re-entry clause in the mining lease has been no safeguard against instances such as this. The right of re-entry is not enforceable otherwise than by a suit in a court of law where the process is extremely lengthy and troublesome and the usual tendency of the judge is not to allow the said right to be enforced. Apparently the underlying idea in making the process so difficult has been the prevention of a misuse of such right by the superior landlord. Some simpler procedure in the matter of the realisation of the superior landlords' dues should be evolved and adequate safeguard provided. Collection through certificate procedure is no doubt the simplest way of solving this difficulty.

(b) As the law stands today, when a lessee sub-leases his leasehold and the sub-lessee under-leases it there is no privity of contract between the original superior landlord and the actual mine owner. The process of realisation of royalty and enforcement of the terms of the lease by the superior landlord on the mine owner becomes a very complicated matter. Over and above the existing rights in law, the original superior landlord should be given the option to exercise his rights direct on the actual mine owner. It should be obligatory on the mine owner to be conversant with the terms of all the superior title deeds (i.e. the original lease, the sub-lease, the under-lease, etc.) and fulfil them and if possible an arrangement should be arrived at among the different shades and stages of landlords and the actual mine owner to the effect that the mine owner would submit reports to all of them at the proper time and pay their respective dues on due date. There is sometimes the case that a mine owner, although himself desirous of fulfilling his commitments at the proper time cannot do so or is afraid to do so, because he cannot be sure that his payment to his immediate superior landlord would be followed by the fulfilment of the respective obligations of the different stages of the royalty receivers right up to the original superior landlord. There is sometimes conflict among such intermediaries and the position of the mine owner is never safe unless all stage of the royalty receivers are satisfied. It seems therefore that the best solution is direct payment by the mine owners to the original superior landlord and payment by the mine owners of their respective profits to the intermediaries.

(c) There should no doubt be an adequate safeguard against the misuse of the right of re-entry. But where there is palpable, intentional and repeated default on the part of the mine

owner to carry out the terms of the lease and pay the dues of his superior landlords and where there is frequent violation of the mining rules and where there are instances of the mine-owner working the property in such a way that it is likely to be spoilt or destroyed and where such instances are detected by inspection of the property and brought to the notice of the mines department and verified by them the exercise of the right of re-entry should be made easier and the superior landlord should not be obliged to go through the present cumbrous procedure which he has to follow.

(d) There is usually a clause in all mining leases allowing inspection to the superior landlord or his agents at all reasonable times. In practice however facilities are not given by the mine owner. This clause in the lease should be an obligatory clause and the superior landlord or his agents should be given all facilities as is done in the case of inspection by the mines department. The clause in regard to the maintenance of books and plans should also be an obligatory clause. The books and plans should be maintained at the colliery office and they should be either in the English language or the prevailing language of the Province. Such books and plans should be open to inspection of lessor or his agents at all reasonable times as provided in the lease.

(e) The clause concerning the submission of reports and plans should also be an obligatory clause. As suggested elsewhere in these recommendations the mine owner should submit one copy each of such report to the different shades and stages of royalty receivers including the original superior landlord in terms of the lease.

(f) Failure to observe an obligatory clause should be penalised.

(g) The clauses concerning skilful and scientific working observances of mining rules, keeping of barriers, protection of the mine from drawing spontaneous combustion and such like protective provisions should be compulsory clauses. It is the habit of many mine owners—who have only in view the grabbing of money by keeping raising cost down anyhow—not to employ skilled men and surveyors and many instances are seen where mines are not laid properly, galleries are driven without survey, pillars are weakened, slack allowed to accumulate in the mines and ultimately the mine is irrecoverably spoilt.

There should be adequate safeguard against the occurrence of such incidents.

(h) For mining leases a basis of measurement should be fixed and the royalty receiver should have the option of survey and measurement for the ascertainment of figures of actual raising. Some mines raise different classes of coal and some run-of-mine coal (i.e. mixed coal). It is often seen that there are different rates of royalty for different classes of coal. Where the raising is run-of-mine and there is no definite agreement as to the proportion of the different classes of coal in such mixed raising, there is always complication in the matter of reports and realisation of royalty. It is the usual habit of all mine owners

who raise run-of-mine coal—to despatch from such raised stock different classes of coal from day to day—burn a quantity in the boilers, measure the stock at the end of the month; if at all feasible, and arrive at the figure of different classes of coal raised during the month. This process of calculation of the different classes of coal is undoubtedly arbitrary. There should be a distinct provision in the lease as to the proportion of steam and small coal in the run-of-mine coal. There is no such difficulty where the rates of royalty is the same on all coal.

Where royalty is on despatches and different classes of coal are despatched, there is no difficulty but again some collieries despatch mixed coal.

(i) It is sometimes seen that an accumulation of big stock results in spontaneous fire, steam crumbling to slack and the weathering of coal entailing ultimate loss of a large quantity of coal and royalty. There should be adequate safeguard against such an occurrence.

(j) Pillar extraction in bottom seam which is likely to result in the destruction of undeveloped seams should be prohibited except by stowing method.

(k) Apart from the usual liberties and privileges given to a lessee there should be certain provisions in the lease in the interest of the mine owners.

(a) Right to work by instroke and outstroke on payment of reasonable way leave royalty should be compulsory in all cases where irregular boundaries and faulted areas are adjusted and uneconomical areas amalgamated in the interest of conservation. There should however be adequate provision of royalty payment to the different landlords by measurements or otherwise.

(b) Surface acquisition for mining purpose should be easier than it is now. The Land Acquisition Act may no doubt be suitably amended to evolve a simpler procedure.

(c) There should be an easy procedure of settlement of underground boundary dispute between two mines which is a very common occurrence.

(d) It should be obligatory on the mine owner to build boundary pillar of his lease-hold area on the surface of the property.

(e) There is usually provision in the Mining Lease for the enforcement of first charge on the leasehold for arrear realisation. The present procedure of enforcement of first charge on all interested intermediaries as well as the mine owners by making them parties in the suit is very lengthy, costly and sometimes absurd. But this may be simplified if in enforcing a first charge or second charge or any subsequent charge, the landlord be made answerable for proper service of notice on the working party and on the leasehold area instead of making all the interested intermediaries parties.

(f) There should be a fixed basis of ascertaining the mineral boundary i.e. whether the mineral boundary will be as per thak bust or Revenue or Cadestral Survey. This will be enforceable for all future mines and in all present leases where

the workings of mine have not reached the boundary as per schedule in the leases. But in the case of a mine which has worked up to the boundary this will not be applicable but it should be made compulsory on the mine owner to fix up the boundary on the surface by building pillars with cement and bricks in all cases. This should be made obligatory by legislation.

(g) As the law stands today it is very costly to secure the figures of despatches from the Railway Weigh Bridge. For correct verification of the despatch figures the Weigh Bridges figure is essential. Attempts should be made that figures from the Weigh Bridge can be easily obtained by the landlord at his will and if necessary on payment of a nominal sum to cover the cost of clerical expenses.

(h) In the case of transfer of the leasehold by way of sub-lease, under-lease, conveyance, mortgages, court sale or by any other means the landlords of every stage must be informed by the registry office or through the Court by service of notice, the nature of such transfer with all other particulars. Supply of up to date working plans and payment of up to date royalties, and other dues, by the lessees to the lessors of all stages must be made a condition precedent to transfer.

(i) To prevent bad mining and wasteful method adopted by some mine owners a degree of co-operation with and assistance from the Mines Department to the Agents employed by landlords to look after their interest is undoubtedly very desirable.

(j) Authority should be given to the Agents of the landlords to inspect the mines under the same status as enjoyed by Mines Department Inspectors. It is desirable that big royalty receivers should employ such Agents with approved qualifications and smaller royalty-owners should combine to employ such qualified Agents to serve their interests.

(k) The Coal is mostly wasted for not adopting a proper method in depillaring and it is strongly recommended that the following points should be kept in mind and proper provision made therefor :—

(i) While depillaring is carried on in a mine, frequent and rigorous inspections are most essential and the mine owner should be obliged to give the landlords' Agents all facilities to do so.

(ii) Any instances of premature collapse of coal pillars heating or possibilities of fire and other attendant circumstances endangering the mine or part of the mine being lost, must be immediately reported to the landlords' agents as well as the Mines Department.

(iii) In property where several exist and which may be worked, a solid block of coal (sufficient for shaft sinking to the bottom lying seams) should be left to get access to the seam or seams underlying the seams depillared.

(iv) The shafts and their supporting pillars should never be damaged by extracting pillars. These are of great importance for exploitation of bottom coal seams which have been found and developed or which may likely to be found in future. Once a seam has been totally exploited leaving no solid block of coal or the shafts sunk into it, it leaves no room to get into or mine the seam or seams below.

(v) It is also essential that at least two properly-laid parallel adjacent roads (galleries) should be left and maintained in the underground working to reach any undeveloped solid part of the mine where depillaring is commenced prior to reaching the boundary and thereby, leaving an isolated solid portion in the demised mine.

(vi) Prior to commencing pillar extraction, the mine owner should be obliged to give notice in writing of his intention to the landlords and the Mines Deptt. to enable the landlords' agent and Mines Deptt. to consider the merits of each individual case and give their recommendations on the lines of maximum extraction, protection, safety, etc.

(L) ABANDONMENT OF MINE AND RELINQUISHMENT OF PROPERTY.

(i) When a mine owner intends to abandon or relinquish a property, he should be obliged to ask for a joint inspection of all parts of the mine and submit up to date plans of the mine to the landlords and to the Mines Deptt. and give all facility for such inspection. The mine owner should be held liable if he fails to carry out the above and drown the mine at his sweet will.

(ii) In the event of relinquishment of a leasehold, first preference should be given to the landlord to purchase the machinery and structures erected on the mine. In case of dispute the price payable for such machinery and structure may be settled by the Statutory Arbitration Board hereafter recommended.

4. Most of the above difficulties will be obviated by amending and modifying the Mines Act as suggested above and all future leases must be framed according to the rules under the modified Act. In regard to past leases also it should be enacted that wherever possible the defective provisions of the lease as also the defects in underground workings should be rectified to the satisfaction of the Mines Department.

5. The rest of the difficulties and disputes if any would all be solved by the setting up by Government of a STATUTORY ARBITRATION BOARD consisting of high judiciaries, representatives of royalty-receivers, colliery owners and expert mining Engineers with power and authority of a special court to deal with all such disputes and difficulties in the relationship between landlords and mine owners. The right of appeal to the Government should in all cases exist.

Question 10.—We are of opinion that the national advantage lies in the continuance of private ownership in the working and disposal of coal but we definitely advocate that the State should exercise effective control over production and/or distribution and marketing.

PART IV

MINING LEASES AND FRAGMENTATION

Question 65.—It is difficult for us to give our replies to this question. The only way to ascertain it, is to demand a statement from the different registration Offices.

Question 66.—Where leases do not contain any provision for instroke and outstroke working, the law, as it stands today, allows instroke only to the leases. On the necessity of provision of this clause in certain circumstances, we have dealt with exhaustively in our reply to questions 7, 8 & 9. Apart from the cases where necessity had arisen in the matter of drawing out the available coal by adjustment of irregular boundaries with a neighbouring property, by adjustment of faulted areas and by amalgamating two or more extremely small areas, if any, no other difficulty has been experienced by the omission of such provisions in many leases.

Question 67.—We have no knowledge of this.

Question 68.—We are absolutely opposed to this. It will be an unwarranted interference with private proprietary rights. The Statutory Arbitration Board hereinbefore recommended would no doubt be empowered to deal with and decide on various questions between the landlords and the mine owners but the latter should be left to settle among themselves terms as to royalty rates, surface rents, salami and other such considerations.

Question 69.—An economic colliery holding depends entirely on the depth at which the workable coal seam lies. It will be practically seen, in all cases that for every foot of such depth, one bigha of area is definitely an economic colliery holding e.g. if the depth at which the workable seam lies is 100 ft. a hundred bighas property of reasonable shape should be an economic holding. This is an easy formula and has been accepted by many experts.

We have no knowledge of the extent of the existence of uneconomic holdings at present.

We have clearly stated in our reply to questions 7, 8 & 9 that the landlords have been in no way responsible for uneconomic holdings and fragmentation of holdings if any. We have exhaustively dealt with the factors responsible for such fragmentation if any in our said reply.

Question 70.—The existence of uneconomic colliery holdings is not desirable in national interest as this will ultimately result in loss of national resource and we advocate amalgamation of such holdings if any, wherever feasible and on such terms as are beneficial to parties concerned.

Question 71.—This is desirable—but it should be based on the formula given in our reply to question 69.

(i) State Ownership of mineral rights is not at all necessary for eliminating the evil of fragmentation of colliery holdings if any and for achieving the amalgamation of such holdings

(ii) The medium of the Statutory Arbitration Board should be enough to solve the said questions.

(3 & 4) Voluntary schemes of amalgamations should be encouraged and there should also be legislation to enforce such amalgamation where it is found necessary for conservation of coal resources, but it should always be through the said Statutory Arbitration Board which should arbitrate and decide in all cases after thoroughly hearing the parties affected.

PART V

CONSERVATION GENERALLY

Question 58.—We are definitely against acquisition of private right. But if the Government undertakes the work of delivering sand for stowing the Govt. should take out long leases of sand rights from the present owners on proper and reasonable terms which may be decided by the Statutory Arbitration Board hereinbefore recommended.

Question 59.—To make the lessors share in the cost of stowing would be absolutely unjustified. The lessor's income compared with the profits of the lessee—is infinitesimally small. Any rise in the market price of coal, as at present, benefits only the lessees. The profit of the lessor remains the same—it never changes. The rate of royalties due to landlords are fixed for all times to come. The variation in the selling rate goes to benefit of the lessee and they take full advantage thereof. The landlords' rate of royalty was fixed at a time when the selling price of coal was at its minimum and this rate of royalty varies from one anna per ton to about 6 annas per ton. To ask the landlords or lessors to pay any amount of this cannot be justified. The lessees and consumers should bear the cost in a share to be fixed on an equitable basis. It should also be borne in mind that out of the aforesaid royalties the landlords are already overburdened with various taxations including income-tax. To take a further slice out of the balance left to them now will mean completely divesting them of all income from their coal resources.

SUPPLEMENTARY NOTE SUBMITTED TO THE COALFIELDS ENQUIRY COMMITTEE BY THE ROYALTY RECEIVERS' ASSOCIATION (BENGAL).

During the examination of the two representatives of this association by the Chairman and the members of the Indian Coal fields Committee certain points were raised which could not possibly be clarified by verbal statements made by the said representatives. The association feels that the issues raised are so large in their implications that they could not possibly be clearly answered without elaborate references to authorities on the subject. The Association, therefore, proposes to send this note on the subjects raised and hopes that the same may be accepted by the Coalfields Committee as a Supplementary answer and explanation of the questions in questionnaire No. 2 of the Coalfields Committee 1945. (The

Chairman of the Committee also wanted such an explanatory note on the subjects from the representatives of this association.)

QUESTIONS 7 TO 9.—OWNERSHIP AND MANAGEMENT

On the point of ownership to sub-soil rights this association begs to submit the following additional statement for the information of the Chairman and the members of the Indian Coalfields Committee :—

(1) The various decisions of the judges in England since the 16th Century clearly establish the absolute ownership of the landowners to all minerals other than Gold and Silver. Such decisions are the accepted laws of the said country and has not been changed until this day in any later decision on the subject.

2 THE POSITION IN INDIA

Hindu Period.—A short summary of the position as between the State and Land owners based on the recognised authorities on the subject has been given by Dr. Radha Kumud Mukherjee in his minute to the report of the Land Revenue Commission, Bengal Vol. 2 (Indian Land System ancient, medieval and modern—page 150). The views enunciated by all authorities on the subject go to show that the function of the State or Sovereign Power was to levy and realise taxes from various sources of income of land owners and other subjects recognising the ownership in the properties and things from which in they derive their income. "The King's position is stated to have been only political and territorial sovereignty which was quite consistent with the rights of private property upon which the state and society were based. Private property in land was limited by its established obligations to the State in the shape of the dues and taxes or 'Bali' payable to it." It is further stated "even in the case of a conquest the property of the conquered in their houses, lands, and other goods does not pass on to the conqueror; but only the taxes due from these. The ownership of village and field belongs to their respective owners and not to the conqueror whose right is restricted to the collection of taxes." In another portion of the note it is stated "Land is not the King's property. What belongs to the King is the duty of defending his kingdom, of chastising the wicked and protecting the good." The authorities gave various sources from which the King used to realise his taxes. Mines and minerals formed one of such sources which conceded the ownership of the individual to the property and to minerals (page 147 of Dr. Radha Kumud Mukherjee's minute).

Moslem Period.—Practically the same system of realization of taxes as in the Hindu period was followed with a later change (during the later Moghul period) aimed more at a permanent settlement with the owners.

1. *British Period.*—There is a statement that "the ancient houses of Bengal who had enjoyed

a semi-independence under the Moghuls and whom the British Government subsequently acknowledged as the lords of the soil etc. etc...."

2. *Status of Zamindars*.—"The Zamindars are now acknowledged as proprietors of the soil." Permanent settlement recognises the right of proprietorship of the land-holders in the soil.

3. Despatch of the SECRETARY OF THE STATE FOR INDIA No. 35—Revenue (Minerals) of the 25th March, 1880 recognised the right to minerals of the Zamindars.

4. *Privy Council Rulings on the Subject*.—(a) A.I.R. 1931—Privy Council 30—35 CWN 233. Bageswari Charan Singh, Vs. Kumar Kamakshya Narayan Singha. "Zamindar held to be owner of the Minerals."

(b) A.I.R. 1917 Privy Council 8—44 I.A.P. 117. Ranjit Singh. Vs. Kali Dasi Debi. "Permanent settlement itself recognises and proceeds on the footing that the Zamindars are actual proprietors of the land."

(c) 16 CWN page 482—at page 488—Raja Durga Prasad Sing, Vs. Brojo Nath Bose. "Apparently the Government does not claim the minerals under permanently settled estates."

(d) A.I.R. 1931—P.C. 162—35 CWN—Page 870. Bhupendra Narayan Sinha Bahadur, Vs. Rajeswar Prosad Bhakat & Others.—"Minerals held to be in Zamindar unless expressly parted with by him in the Pattani grant."

All these authoritative rulings and a host of the Privy Council Decisions on the point as well as the above mentioned despatch of the Secretary of State and the prescriptive right acquired by the Zamindars have settled the ownership of the minerals in the Zamindars for all time to come.

The position therefore may be summarised as follows:—

- (a) The right of property in the soil and in the underground minerals since the Hindu period has been in the land-holders.
- (b) The right of the State even in the case of conquest has been the right of collection of taxes from the various sources which includes mines and minerals, the property right whereof has however, been all along in the land-holder.
- (c) The same view continued during the Moslem period. The Moslem emperors never claimed right in the soil but right to collect taxes.
- (d) The British period also recognised the land holders as the lords of the soil.
- (e) The permanent settlement cleared all doubts and acknowledged the Zamindars as the proprietors of the soil.
- (f) The despatch of the Secretary of State dated 25th March, 1880 as also all P.C. Rulings up to date accepted the Zamindars as the absolute owners of the minerals.

All leases and documents in respect of minerals as between the Zamindars, the Putnidars and Dar-putnidars, the lessees and the sub-lessees

have not been placed on a firm footing on the basis of the above mentioned authorities and authoritative decisions.

The various types of leases and documents concerning coal mining right which are prevailing in the Raniganj field may be classed as follows:—

- (a) Perpetual leases and also confirmatory leases made between the Zamindars and Putnidars or Dar-putnidars. This class of leases came into existence after the above mentioned authoritative P.C. rulings. By these documents the Zamindars have in many instances confirmed the rights of Putnidars and Dar-putnidars in their coal properties.
- (b) *Mining lease or Coal mining sub-lease for 999 years*.—Most of the leases come under this category and they are virtually perpetual leases with right of reversion to the owners under certain conditions.
- (c) *Coal mining lease for shorter period*.—There are very few such leases in the Raniganj field.

All the above leases are governed under the law by Transfer of Property Act. There is of course restriction in most of the leases that transfer or sub-lease could not be made by the lessee without the permission of the lessor first had and obtained. Under the law transfer or sub-lease could not possibly be absolutely restricted and consent could not be arbitrarily withheld. The general principle is that a right of transfer is incidental to and inseparable from the ownership of property. In *re. Parry & Daggs* (31 Ch. Dn.—130—134) Fry L.J. said "from the earliest times the Courts have always leant against any device to render an estate inalienable. It is the policy of the Law always to make estates alienable and it is immaterial by what device it is attempted to prevent an owner from exercising the power of ownership." (Mulla T.P. Act—2nd edition—page 85.)

By far the largest number of cases of fragmentation have occurred or arisen by the operation of the said Act. The lessee in most cases has kept an area for himself to work and develop same and either sold or let out the rest of the property to one or several other parties. Practically most of the cases come under this category and this has arisen undoubtedly from the provisions of operations and operations of the Transfer of Property Act. In other cases the lessee who has probably some co-sharer has divided the area amongst themselves to work them as separate mines. These have arisen from the joint operation of Transfer of Property Act, Law of Partition and the Law of Inheritance.

It will, therefore, be seen that the original lessors and land-holders have been in no way responsible for such fragmentation if any. This question of fragmentation and un-economic colliery holdings which is agitating the minds of the authorities should in the view of this Association be looked at from another angle. It will

no doubt be realised that all these small coal mines represent practically the Indian Section of the trade and should therefore, receive special consideration in the hands of the authorities. No doubt the representatives of the various trade and other organisations have spoken in favour of these small mine owners and have justified from technical and other aspects the desirability of existence of such small mines. The issue raised no doubt is that by the operation of these small mines much coal is being wasted. This Association feels that the said question is an extremely debatable question. And this Association summarises its views on the subject as follows:

1. There is no dearth of example in this coal-field of landholders granting leases to big parties of large areas of coal land. In most of the cases it is found that such large concerns have only developed a portion of the area and are merely holding on to the rest of the areas. Example of such cases will be found in the vast areas of coal land in Raniganj Coalfields and other fields held by big concerns like Bengal Coal Co., Equitable Coal Co., New Birbhum Coal Co., Ondal Coal Co., and other companies. Most of the said areas are yet remaining undeveloped. This is surely not to the best interest of the land-holders who are thereby getting only a meagre income from only such collieries as have been opened in their areas, whereas if all the areas had been opened up it would have yielded them far greater income than it is doing now. The land-holders can not be blamed if they have since realised the position and are trying to lease out areas and plots to various parties who would be inclined to open and develop the areas.

2. In these large undeveloped areas undoubtedly many collieries could and should spring up having regard to the fact that the country is in such urgent need of coal.

3. It cannot surely be a good policy from the national point of view to vest large areas only in the hands of big capitalists both foreign and Indian.

4. The more the fragmentation the greater will be the number of collieries providing opportunities to small Indian Companies and small Indian capitalists, employment of large number of Indian technical experts, clerical staff, labour and other employees.

5. Big companies developing big collieries always tend to be only big shows. They yield no doubt a lot of profit to their managing agents (mostly foreign), large salaried foreign employees and other vested interests but no or little dividend to the shareholders who are mostly Indians.

6. These big shows always grab all the benefits connected with the trade from the authorities that be to the exclusion of small mine-owners who are all Indians.

7. From the point of view of efficient management it cannot be said that it is monopoly of only the big concerns. Many and most of the small mines are also being efficiently managed.

8. Bad workmanship and waste of country's coal are not to be associated with only the small mine-owners. Examples are not lacking of such bad things in big collieries. Cases of fire, explosion, collapses, inundation and other attendant causes of heavy losses of life in big collieries have been more frequent than in small mines.

9. There is much cry of locking of coal in intermediate barriers between small mines for their common boundaries; but such locking of coal for irregular boundaries and faulted areas bear no comparison to what remain locked in pannel barriers in big mines and the vast quantity of coal remaining locked under the roadways and railways in the coalfields.

REMEDY

The remedy of all these evils which are being given so much importance does not lie in putting blame on the shoulders of the landholders and probably enunciating a policy of taking away their rights. What is required is an efficient mineral policy of the Government on sound line and give effect to it through the existing structure. There is no necessity of disturbing the ownership of the landlords as, such ownership is always subject to the right of the Government in canalising their mineral policy in whatever efficient line the Government may desire.

As the creation of these small mines seems to be whole crux of the problem the Government should thoroughly investigate and decide whether the creation and existence of these collieries have been in national interest. If that be the Government's finding, as this Association hopes it should be, then there is no case for the disturbance of the ownership of the landlords.

The remedy surely lies in the introduction of compulsory stowing with 100 per cent. State assistance. Whatever may be the shape and size of the property worked, introduction of stowing will enable the extraction of the maximum quantity of coal and the cry of waste of national resources will utterly disappear.

Fragmented coal mining areas have no analogy to fragmented agricultural lands, where the necessity of amalgamation of areas is being felt only because it is a problem of growing something from the land; whereas the problem in such colliery areas is one of extraction of resources which are already there. If any solution is found of maximum extraction, all controversies are set at rest.

It has been clearly stated in the reply submitted by this Association and also by the representatives of this Association when giving evidence that comprehensive amendment of the Mines Act and the appointment of a Statutory Arbitration Board would solve all controversies raised as between the lessors and lessees. Practically all mining leases contain clauses demanding efficient working with the object of obtaining maximum output and practically all mining leases compel such workings to be done according to the Mines Act and the rules and regulations framed there-

under. If, therefore, the steps desired are taken the present mining leases even would cover all amendments that may be made to the mines act and mining regulations. This association also suggested a Standard Mining Lease as a Schedule to the Indian Mines Act containing clauses which would be compulsorily applicable to all leases past, present and future. All clauses in regard to efficient workings can easily be standardised and they would immediately be put within the scope of existing leases and it may be enacted that such leases would be deemed to contain such clauses. There would naturally be no difficulty in regard to the future leases. The problem of efficient workings having been solved practically all controversies will disappear. There has been raised a question of standardisation of royalties ; but this Association feels that the question one of so small an importance (having regard to the fact that the rates of royalty prevalent in the coalfields is so small in comparison to the price fetched by the sale of coal) that it can easily be ignored for the time being.

There are certain other questions that were raised during the examination of this Association's representatives and this Association intends to deal with them in the following manner :—

A question was asked on the meaning, definition and justification of the Salami that is charged by all landholders for the mining leases. There is apparently some confusion as to what this Salami actually represents.

A mining lease is not an absolute transfer of the right of the owner but is a transfer of a right to enjoy the property for a certain time or in perpetuity (*Vide* Sec. 105 of the T.P. Act). The Salami is a part consideration or price paid to the owner for such transfer. In lieu of the balance price which would in any case have been available to the owner if he had transferred his right out and out, it is contracted in the mining lease that the lessee would pay a minimum royalty and a royalty which represents nothing but a deferred payment of the balance consideration money. The lease only provides by its various clauses safeguards of realisation of such balance consideration money by deferred payment. There is even provision in the lease that if the lessee fails to make such deferred payment the lease may be put an end to and the property taken back to Khas possession. There is also a provision of the property coming back to the owner at the end of the terms of the demise and also right to surrender on the part of the lessee under certain conditions. This may bear an analogy to the case of a house property being let out on long lease and the house owner receiving therefor a Salami or premium at the inception and so much rent annually. The lessee exercises the rights of full ownership so long he fulfils fully the terms and covenants in the contract. It must be considered that there is always in the owner a right of reversion of the property under certain conditions and the owner can utilise thereafter the property as his own property and work it himself or let it out to others. Salami given is a capital receipt. Ref. Mula T.P. Act page 577 2nd edition) "Commentary on Sec. 105. The

consideration of a lease is either premium or rent. Premium is the price paid or promised in consideration of the Demise. The definition of the lease in Sec. 105 was criticised in the Case of *in re: U.P. Electric Supply Co.* as excluding a lease where the consideration is Premium as well as rent. There is no doubt however, that the consideration may be rent plus premium as well as rent alone or premium alone." (This Association also beg to refer to the several chapters in Macswiney on Mines relating to rent and royalty and mining leases generally.)

INSTROKE AND OUTSTROKE

1. When a lease does not contain any provision for instroke and outstroke work the right of instroke is inherent under the law. Instroke and outstroke work can however be restricted by a specific clause in the lease to the said effect. The justification for the charge by the superior landlord of a wayleave royalty for instroke and outstroke work was questioned and the position could not probably be clarified for the confusion raised over the issue during the questioning of this Association's representatives. The justification for the charge of such wayleave royalty is as follows :—

- (a) A Lessee acquires one property from the lessor in the first instance and has in the lease no provision for any instroke and outstroke work (such provision is never kept in a lease when the lessor and the lessee have not in contemplation of the contiguous property belonging to the same lessor being subsequently acquired by the said lessee). The lessee may on some future date acquire the contiguous property from the lessor and may either get a provision made in the new lease for instroke and outstroke work or may not if he decides to work the other property as a separate mine. If provision for instroke and outstroke work is made in the new lease then no question therefor is raised. If, however, on a later date the lessee decides to work the two properties as one property and desires to get the right of instroke and outstroke then the question of further consideration in the shape of wayleave royalty arises and there is surely justification for same. The lessee is going to save a lot of capital outlay for not being obliged to open a separate mine and is going to pierce the intermediate barriers and bene fit in many ways. The charge of wayleave royalty in such cases is no doubt justified. We are placing this case, as against this case a very strong argument can be raised that there is absolutely no justification for the superior landlord in charging wayleave rent in the circumstances where both the properties are held by the same essee under him. Further, justification thereof will be very apparent if the queson is considered from another angle. At the time of

making the two leases the lessee never contemplated such instroke and outstroke work and on the contrary he had originally planned to develop them as separate mines. If he had made such contemplation in the beginning and the fact had been made known to the superior landlord no doubt some provisions in regard to that would have been made in the subsequent lease or may be that the superior landlord at the time of making the second lease might have decided on higher Salami and higher rate of royalty for the second property having regard to the fact that the lessee would be saved from any capital outlay on sinking new shafts etc. and of the development works. The charge of wayleave rent in this case is a substitute for what additional consideration or otherwise the superior landlord would have derived at the time of making the second lease for granting such right.

- (b) There is no lack of example in this Coal-field of lessee acquiring and the working a contiguous property by instroke and concentrating his entire work in such property—to the exclusion of the original property. The lessee thereby deprives the superior landlord of the original property from his Royalty income. If he had worked the two properties as separate mines then both the properties would have yielded royalty. If therefore a wayleave rent is charged by the superior landlord of the original property for the conveyance of such 'foreign' minerals through his property surely his action is justified.
- (c) In all other cases of instroke and outstroke works there are abundant justification for the charge of such wayleave rent.

2. This Association begs to quote Macswiney on Mines, an accepted authority on the subject.

Meanings of Instroke and Outstroke. (page 131)
Para. 443 to 449.

"443. The right of instroke is the right of conveying minerals from a demised mine to the surface through a pit or shaft in an adjoining mine. It is the converse right to that of outstroke; which is the right of conveying minerals from an adjoining mine to the surface through a pit or shaft in the demised mine. There is also a third right; namely, that of conveying from an adjoining mine minerals through underground roads in the demised mine, but raising them elsewhere than at a pit in the demised mine. In the two latter cases the minerals worked from the adjoining mine are, in contrast with the demised minerals, commonly spoken of as 'foreign' minerals.

444. The lessee of a mine is entitled, *prima facie*, to work the minerals by instroke. And he will not be deprived of this right, unless by clear and specific provisions. However, his position may be different, if he is acting with *mala fides*, or unskilfully.

445. In some case where the right of outstroke or of underground carriage is claimed, the position seems clear. When the lessee of a mine is also the lessee of the shaft and the non-minerals strata, but is not the lessee of the surface, he is not whatever his rights with respect to the shaft and the non-mineral strata, entitled, *prima facie*, to carry foreign minerals from the pit's mouth across the surface. And when he is not the lessee of the non-mineral strata, but has driven roads therein for the purpose of working the demised mine, he is not entitled, *prima facie*, to use such roads for carrying foreign minerals underground. And the lessee of a mine is not, in that character only, the lessee of the space or vacuum which his workings create, the immediate property in such space or vacuum being in or reverting to the lessor.

446. As regards outstroke, however, the lessee of a mine may be also the lessee of the land generally, including therefore the surface, the shafts, and the non-mineral strata. And as regards underground carriage, he may be also the lessee of the non-mineral strata; and in each of these cases, the question arises, what is his position? To answer this question, regard must (it is submitted) be had to the position of a lessee as contrasted with that of a foreholder. When a lease is granted for a specified purpose, the lessee cannot, *prima facie*, use the demised property for another purpose. On the other hand, in cases of Waste a lessee is not guilty if he uses the property for a purpose for which it was intended to be used. The question therefore (it is submitted) is, was it within the probable contemplation of the parties that the lessee should have the right of outstroke or under ground carriage? The burden would (it is submitted) be upon him to show that it was.

447. If a lessee carries foreign minerals without having the right to do so, the lessor may obtain compensation by way of wayleave rent.

448. A lessee is entitled, *prima facie*, to permit the demised mine to receive by the natural action of gravitation, the drainage of an adjoining mine. And if he makes, or permits to be made, in the adjoining mine any conduits or channels, not for the purpose of artificially conducting water through the demised mine, but in the ordinary and proper course of working the adjoining mine; and water flows along such conduits or channels into the demised mine, he is, *prima facie*, free from liability. The position is different if he makes a channel "in order that the water might pass through".

449. A lessee is entitled, *prima facie*, to use or permit to be used, the demised mine for the purpose of ventilating an adjoining mine."

The justification of the charge of wayleave rent will be seen in the last portion of the above paragraph 445 which says—"And the lessee of a mine is not, in that character only, the lessee of the space or vacuum which this workings create, the immediate property in such space or vacuum being in or reverting to the lessor." And also in para. 447 which says—"If a lessee carries foreign minerals without having the right to do so, the lessor may obtain compensation by way of wayleave rent."

INSPECTION AND CHECK

A lot of questions were raised on the so-called negligence and incompetence of the landholders in keeping a check and control over the lessee and also on the point of appointing technical experts in assisting them generally for such check and control over the lessees. This Association in its written reply has given detailed answers and explanation on the subject and has also stated through its representatives what it is planning to do and what has been the difficulties and what are the remedies. Many people seem to have exaggerated ideas of the powers, privileges and arbitrary actions of landlords over their lessees and tenants. The days of such control by landlords over the lessees as in the 18th and 19th Century are long gone by. It is rarely realised in what helpless position they are now and how cautiously they have to proceed these days within the bounds of laws, which have completely fettered all their activities towards protection of their rights and privileges and reduced them to practical nothingness. It has been stated by this Association that the landholders and lessors have clauses in their leases of inspection and check on the lessees' workings but it is hardly realised that they or their representatives have no statutory authority in the matter and the one and only step left to them at all times is to seek recourse to a Court of law to enforce the terms and covenants of their leases. This association beg to submit that there are numerous instances wherein the landlord or his representatives have not even been allowed admittance to the lessees' property and the disputes between them have been subject matter of some law suits. This Association will shortly forward a list of some such instances and law suits—information about which are being collected.

A question was asked to this Association's representatives during their examination as to whether this Association is in a position to give one dozen instances of landholders and lessors appointing technical advisers to look after their interest. This Association is collecting such informations from its members and the same will be forwarded as soon as possible.

It may probably be stated that in many instances where certain estates were in the hands of Court of Wards their representatives and technical advisers had no difficulty of inspection and check on the lessees. But it will probably not be forgotten that such representatives of Court of Wards estates stand absolutely on a different footing and they undoubtedly held or hold some statutory position being employees under the Government. This association stated in its written reply and also through its representatives during their examination that this association has prepared a Scheme whereby the small royalty receivers amongst its members would combine to appoint technical advisers with approved qualifications. Some of the large royalty receivers amongst its members have already in their employment technical advisers with proper qualifications and others are shortly going to do so. This association's suggestion is that such technical advisers with the approved qualifications should be given some statutory authority, preferably

of the status of the Junior Inspectors of mines to enable them to co-operate with the inspectors of mines and keep a check and control over the lessees.

SURFACE ACQUISITION FOR COLLIERY PURPOSES.

It is probably thought that the landholders and lessors have control over the surface and can get them easily vested to the mine owners for colliery purposes and that they in many instances neglect to do so. It is, however, not realised that all tenanted lands are held by the tenants in permanent rights without any power on the landlord to eject them. How could the landlords be put to blame if they be not in a position to place such lands in the hands of mine owners who required them for colliery purposes. The lessee can easily apply for the acquisition thereof under L. A. Act. What is required is an amendment of the Land Acquisition Act to facilitate such acquisition for colliery purposes.

IRREGULAR BOUNDARIES AND FAULTED AREAS

Much controversies have been raised over this question and the blame is being put on the shoulders of the landlords for not being able to remedy these evils for which they have not been in any way responsible. The landholders are not surely responsible for their Mouza boundaries and the one and only alternative for them has been to lease out according to such boundaries. What else could they do? They cannot lease out other people's property. The question is how to straighten out the boundaries of the properties already leased out and what is the general solution of the problem. Surely there can be no difficulty in regard to future leases. If a rule is laid down by the Government for future leases the landholders would no doubt be bound to follow it. As far as the past leases are concerned the solution lies in the hands of the Government by the appointment of a Statutory Arbitration Board as suggested by this Association with the power to effect compulsory exchanges between two leases of adjacent properties and compel the respective superior landlords to agree to such exchanges being made amongst their lessees. The question then will only remain as to the mode of payment of royalties of the respective superior landlords. This can easily be done by measurement of the workings in such areas and calculation of the quantity of coal extracted by the respective lessees, and the royalty paid on such calculation to whichever superior landlord may be entitled thereto. The only thing that will happen in such cases is that a particular superior landlord instead of receiving his royalty from his own lessee in respect of working in such area may have to collect it from the other lessee which is no doubt a very small matter compared to the problem involved. This solution also holds good in the case of adjustment of faulted areas also. This Association's view is that the solution on the superior landlord's side is much simpler than between the two lessees working the adjacent property. The Statutory Arbitration Board suggested by this association can no doubt solve this problem in a relatively easy and simple manner.

A question was raised that the landlords demand mutation fee in many instances. This is not correct. The demand of mutation fee is only made in cases where the lessee transfer or subleases his right against positive provision in the lease that the lessee cannot do so without the permission of the lessors. This is more a convention than an actual legal demand for leases of perpetual nature. The lessor can hardly restrict the right of transfer or sublease by the lessee. It is usually paid to facilitate such transfer or sublease by the lessee.

When the representatives of this Association stated that universal application of stowing with 100 per cent. State assistance would solve wholly the vexed question in a relatively easy and simple manner they were asked as to why they did not usually keep such a covenant in their mining leases. The answer is that in the leases the clauses of skilful and scientific working are kept in a general manner and safeguarded by the insertion of the terms of skilful and scientific working according to the most approved practice and according to the rules and regulations laid down by the Government, so as to obtain maximum output from the mines. It is impossible to cover in clauses in the lease of all the mode and manner of scientific working of a property. They are changing day to day and new ideas of scientific workings are daily springing up. This Association therefore feels that the safeguarding clause usually kept in all mining leases should be sufficient to cover this question in all its aspects. If the Government lays down new rules and regulations of scientific working such safeguarding clauses already in the lease would surely cover it.

This Association concludes by saying that it has every hope and confidence that the Committee of Enquiry would consider the problems from all its aspect and if the committee finds that a solution of the problem that may have arisen out of the evils are possible without disturbing the existing structure, surely the Committee should do so, and not recommend any revolutionary change in the existing state of affairs which atleast is working for so many hundreds of years and has stood the test of time.

ORAL EVIDENCE OF MR. NALIN BEHARI LAL SINGH AND KUMAR PASHUPATI NATH MALIA, REPRESENTING THE BRITISH INDIAN ASSOCIATION AND BENGAL ROYALTY RECEIVERS' ASSOCIATION.

Question. Could you tell us briefly the structure of the two Associations you represent ?

Answer. The British Indian Association is a wide body comprising all classes of landlords. The Royalty Receivers' Association consists mainly of persons in the Asansol Sub-Division who receive royalty from the Mine Owners and many of them are in the position of intermediaries between the Zamindars and the Mine Owners. The broad distinction is that the original zamindars and owners of land are members of the British Indian Association, whereas the Bengal

Royalty Receivers' Association is confined to recipients of royalty, mainly in Bengal and to some extent in Bihar and as mostly Putnidars, Darputnidars etc.

Question. Most of the leases granted by zamindars are all Putni leases and more or less perpetual leases. Is it correct that the only right remaining with the original zamindar is the right to receive his rent, all other rights having been passed on to Putnidars ?

Answer. The old conception was that once a Putni lease was granted, minerals and everything passed on to the lessee from the "centre of the earth to the centre of sky". That conception has been changed by later legal pronouncements in cases that went up to the Privy Council, and it has been held that, unless minerals have been specifically mentioned in leases to Putnidars, the rights thereof have not passed on to them.

Question. You have explained in your written reply why the zamindars were not able to exercise due care in regard to the working of lands leased out by them. The failure is attributed to faulty guidance by Government, ignorance of the law. Since when has the position become clearer ?

Answer. Since 1911 or 1912.

Question. Are you satisfied that during the last 30 years the zamindars have taken every precaution to safeguard their interests in the sense of seeing that their properties are properly worked, with no permanent injury to the mineral deposits ?

Answer. Before the introduction of the Indian Mines Act there was no approved system of mining. Everybody worked his property according to his discretion. For the past 15 years there have been better leases and more rigid and rigorous inspections. Big estates, e.g., Burdwan, Cossimbazar, Searsole, maintain an efficient technical staff to inspect their properties and are equipped with technical advice in the matter of mining methods. In the majority of big estates there is an inspection system by experts, some of whom are employed part time and some whole time.

Question. Can you briefly tell us the reason for the unanimous criticism by responsible people who have investigated the position of coal-mining in this country over the last 25 years, that in the matter of inspection grant of leases, etc., there has been practically no supervision.

Answer. I believe that the interests of the zamindars and landlords were not so thoroughly presented before the 1937 Committee.

Question. You have presented to us a plausible case that the zamindars are not really responsible for what is known as fragmentation or the grant of unduly small leases. Could you tell us, as responsible owners of the 'property, what you consider to be the economic area which should be leased to ensure proper exploitation of coal ?

Answer. An economic area depends on the depth at which a workable seam lies. The usual formula is that if there is workable seam below

100 ft.— a 100 bigha property is an economic holding. Similarly if the workable seam lies at a depth of 500' ft.— a 500 bighas property is an economic holding.

Question. If I were to tell you that the number of leases granted in the last four or five years of areas less than 100 bighas is extremely large, could you then explain to me why this has happened?

Answer. So far as our knowledge goes about the Raniganj coalfield, the areas leased are generally large. We categorically deny the suggestion that the discretion to lease out small areas was exercised not because a holding was an economic unit from the point of view of exploitation in a scientific manner but because of getting the utmost by way of "salami" or royalty. If fragmentation has taken place, it has occurred at the level of mine-operators. The transfer of property Act which governs the Sale & Transfer of property and the law of inheritance which governs the partition of property among heirs are the contributory causes for fragmentation. And if universal stowing is applied there will be no necessity for amalgamating fragmented holdings. There is a provision in present leases that no lessee would be permitted to partition his property into less than so many bigha areas. Old leases did not contain any such provision.

Question. What, in your opinion, would be the size of the smallest area that could be worked economically?

Answer. 40 bighas dependent on the depth at which the workable seam lies as per formula herein before mentioned.

Question. Are you convinced that leasing out such a small areas as 40 bighas for exploitation of coal does not involve loss of coal permanently in the boundaries and unsound mining practice?

Answer. Yes, where the area is an isolated unit. If it were not isolated, provided the coal is about 22' thick to a depth of 125', we do not see why an area containing 100 bighas could not be worked scientifically.

Question. It has been put to us, without ascribing any blame or deliberate policy on the part of zamindars, that the use of the right to minerals left in the hands of zamindars has led to the existence of bad and inefficient mining practices in the coalfields area; that it has prevented the adoption of a co-ordinated sequence of extraction in various mines; and that it has led to the emergence of extremely unstable boundaries which prevent the scientific development of the coal bearing areas. Would you deny that such a state of affairs prevails to-day?

Answer. We do not deny it, but it is an extreme view and is only one side of the picture. These deficiencies no doubt occurred when leases were granted in the beginning. As regards

unsuitable boundaries, the reason is partly also the existence of irregular revenue boundaries, over which we have no control.

Question. Has there been any lease given for the working of one seam in an area to one party and the working of a second seam in the same area to another party? If so, what is the justification for such a policy?

Answer. This is very rare in the Raniganj coalfield. There may, however, be justification according to circumstances. Suppose a lessee has no resources to work beyond a particular depth for which he has been granted the lease. If the property has to be worked beyond that depth some other lease may have to be granted to a different person.

Question. Does it not follow that you should ensure before you grant a lease that the person to whom the lease is given is financially in a position to work the area properly?

Answer. We always look to the financial condition of our lessee first. Most of the leases contain a provision that a lessee may not sub-lease a property without the approval of the zamindar. Some of the Bermo leases given to a limited company are, however, the exception.

Question. As regards the period of a lease is it universally understood to be for 999 years?

Answer. It was universal once, but it is for 99 years now.

Question. It has been represented to us by the Indian Mining Association that a long period like 999 years makes for better economic exploitation of coal than a short period of sixty years as in the case of Government leases in the C. P.

Answer. We claim that our system is conducive to more efficient working compared to the Government system, as it offers an incentive to equip the property with adequate machinery with a view to the proper development of an area.

Question. You have stated in your written memorandum that the right to work instroke should be conceded on payment of a reasonable way-leave royalty. But I understand that the legal position as interpreted lately is that instroke rights are inherent in any lease. Is this correct?

Answer. Unless you give the right specifically in the lease for instroke and outstroke working you cannot assume it to be inherent in the lease. The justification for this royalty is that the enormous initial cost which is involved in sinking fresh shafts etc. is eliminated when coal is taken out through somebody else's property, in the same way as I would be justified in charging a monthly rent if I were to give way-leave through my house.

Question. Could you tell us whether surface rights for colliery purposes can easily be acquired under Section 50 of the Pargal Tenancy Act?

Answer. A suitable amendment to the Land Acquisition Act will solve the problem better. The procedure under this Act is sometimes very lengthy. We do not think there is any necessity for asking for an amendment of Section 50 of the Bengal Tenancy Act.

Question. Do you think there is any justification today for the zamindar claiming to retain possession of some thing in the land which has not yet been discovered?

Answer. Yes, definitely. If the land belongs to him, minerals also belong to him. We, however, agree that times have changed, and if the sanctity of private rights on which so much emphasis is laid stands in the way of national interest, it should be done away with. National interest should be the first consideration, provided it is truly national.

Question. Looking at the picture as it prevails to-day, there are various steps which the Government needs to take in order to ensure proper exploitation of the mineral resources of the country. If the Government were to step in to acquire the mineral rights from the zamindars, do you think that the State should guarantee them the existing incomes from the property?

Answer. The present Government is not a National Government and so it can not think in terms of nationalization of private interests in the country. The matter of nationalization, therefore, should be left to be taken up by a properly constituted National Government and that Government will decide the question of compensation to Landlords or guaranteeing them the existing income. If such a National Government is established and takes up the question and even decides that no compensation should be paid to Landlords and that for serving the larger interest of the Nation, we think, the landlords will not be slow in making the sacrifice they will be called upon to do in this respect.

Question. If legislation is put into effect for improving the relationship between the zamindar and the mine-operator, would you agree to the State exercising control over the grant of leases?

Answer. We are agreeable to reasonable control. We suggest that a standard mining lease should be framed as a schedule to the existing Mines Act, so far as the technical side is concerned and certain clauses in the standard lease should be made to apply to all leases, past, present and future. That has actually been done in the case of the Indian Companies Act.

Question. The impression left in our mind, after considering the various opinions expressed before us, is that the ownership of mineral rights consists of nothing else but collection of royalties, and if a method safeguarding that royalty could be devised, the zamindars or landlords should really have no grouse if Government were to acquire the mineral rights and centralise their mineral policy on a scientific basis?

Answer. We disagree when you say that we have no rights in minerals apart from royalty rights. We claim our legal right to take possession of the minerals under certain circumstances and then to work them ourselves or release them to some other party on a royalty basis.

Question. We have heard that your Association is in favour of the "Salami" system. Could you give us the justification for charging salami instead of charging by way of royalty?

Answer. A mining lease is not an absolute transfer of the right of the owner but is a transfer of a right to enjoy the property for a certain time or in perpetuity. Salami is a part consideration or price paid to the owner for such transfer. In lieu of the balance price, which would in any case have been available to the owner if he had transferred his right out and out, it is contracted in the mining lease that the lessee would pay a minimum royalty and a royalty which represents nothing but a deferred payment of the balance consideration money. People have a wrong idea about salami. They think the amount is something very large. If we had sold a property, probably it would have fetched us Rs.4 or 5 lakhs, but all that was charged was probably Rs. 50,000 as salami and four annas per ton as royalty. We deny the charge that salami is attractive to zamindars because the sum received escapes income-tax.

Question. In order to encourage universal sand-stowing, are you giving out leases of sandrights for the removal of sand by collieries?

Answer. In some cases leases have been granted for removal of sand for colliery purposes.

Question. Modern mining practices indicate a trend towards larger units of operation, and in Bengal particularly there is a very particular inheritance system which leads to subinfeudation. Is it your suggestion that these two aspects should also be corrected by some legislative action?

Answer. I think that cases of subinfeudation which you have indicated are not so enormous as to require legislation in that direction.

BRITISH INDIAN ASSOCIATION

Letter No. 117/46 dt. 1-4-1946 TO THE SECRETARY, INDIAN COALFIELDS COMMITTEE.

In continuation of this Association's letter conveying its opinion on the questionnaire issued by the Indian Coal Fields' Committee, I beg to inform you that my Association endorses the replies given by the Bengal Royalty Receivers' Association, subject to the observations given in the Association's opinion.

Should, you however, consider it necessary to ask for oral evidence in elucidation of the Association's replies, I may inform you that Mr. Nalin Behari Lall Singha and Kumar Pashupati Nath Malia of Searsole (who are members of the Association) who will appear to give evidence before your Committee on behalf of the Royalty-Receivers' Association are also authorised to do so on behalf of this Association.

WRITTEN EVIDENCE SENT IN BY THE HONORARY SECRETARY, BRITISH INDIAN ASSOCIATION
CALCUTTA

I beg to acknowledge receipt of your circular enclosing the questionnaire issued by the Indian Coalfields' Committee on the different phases of the problems connected with the coal industry. My Committee welcomes the appointment of the Indian Coalfields Committee for the investigation of the industry. It has given close consideration to the Questionnaire. My Committee seeks to deal with the problem in a general way without entering into details connected with the coal industry. In fact, it does not attempt to send replies to the questionnaire specifically. It therefore records below its opinion on some of the questions raised:

(1) My Committee prefaces its observations with the remark that the Government of India have been extremely indifferent to the betterment and improvement of the coal reserves of the country. They have not played their part well. Coal occupies a very important position in the mineral industry of India; it exercises tremendous influence on the industrial regeneration of the country. It is not only used for domestic purposes but also used for preparing metallurgical coke for iron ore smelting. It is partly true that the high ash content makes Indian coal inferior with the result that more coke is used in the blast furnace. The coal deposits of India are generally concentrated in a narrow strip of territory in the Bengal and Bihar region, but there are important deposits also in other centres like the Central Provinces Hyderabad, the Rewa State. Coal also exists in Assam. Bikaner, Baluchistan, the N.W. Frontier Province and Rajputana. Moreover, there are large areas of coal bearing rocks yet to be explored. Moreover, the requirements of coal, incidental to further industrialisation, cannot be met by the existing amount of coal raised in India. All this emphasises the importance of the coal industry in the improvement of the economy of the country.

2. CONSTITUTIONAL POSITION

Under the Government of India Act 1935, the power to regulate mines and mineral development belongs in fact to the federal legislative list. The correct position is that the Central Government have the first preference to do all that is necessary in the interests of the coal industry. During the war, through the application of emergency powers, the Central Government exercised powers in the regulation of the production and distribution of coal, although under the Constitution Act 1935, trade and commerce within the Provinces belonged to the Provincial Government. My Committee notes that amendment to the Government of India Act 1935, are before the British Parliament with a view to centralising coal, its production and distribution. My Committee endorses the proposal, as it feels that coal being such an important and vital material for the industrial regeneration of the country should be a subject for Central control so that regional development and the exploration of coal reserves can be carried on an all-India basis especially when India is treated as one unit economically.

The slow and indifferent action of the Central Government in the matter cannot be justified on the ground that they suffered for lack of powers, but they initiated no positive mineral policy. The Coalfields Committee 1920 recommended the establishment of a Controlling Authority; the Coal Mining Committee 1937 proposed the setting up of the Coal Conservation Authority. Beyond framing regulations under the Indian Mines Act and establishing a Coal Mines Stowing Board, the Central Government could not show that they are in a positive mood to better the prospects of the coal resources in India. Dr. Cyril S. Fox, late Director of the Geological Survey of India criticised the Government of India's mineral policy. The Mines Department was established to open up mineral deposits and generally show the way for the development of the mineral resources of India, but instead of this, it has been employed for administering the mining rules and regulation. The position was that no mineral policy, as an adjunct to industrialisation, was chalked out. The Geological Survey Department was organised in India in 1851, but much work remains to be done. The constitutional position is no handicap especially when the coal industry in all its problems is treated as a Central responsibility. My Committee welcomes the position that "coal" is being centralised, even when emergency provisions will expire.

3. STRUCTURAL ORGANISATION OF THE INDUSTRY

My Committee recognises that the system of Managing Agents is a historical legacy in the development of the Indian coal industry and the major portion of the coal industry is controlled by Managing Agents who have various other industrial interests. Private agencies or private persons have undoubtedly done the pioneering work, but they have outlived their usefulness. The present position calls for vast expenditure on the following lines : (1) expansion of research facilities ; (2) exploration of coal-bearing deposits ; (3) avoidance of waste in mining the coal and dusting it; (4) economical utilisation of the by-products ; (5) betterment of the efficiency of labour ; (6) the improvement of transport facilities to meet the needs of the country's programme of industrialisation. All this cannot be satisfactorily done if the structural organisation of the industry is not altered. My Committee feels that private resources and private initiative will not be equal to the task, but it is equally insistent that the cumbrous ways of the bureaucratic administration are not suitable. A change is needed.

4. OWNERSHIP AND MANAGEMENT

It has been suggested that private ownership of mineral rights in permanently settled areas is a handicap. It is difficult to follow this argument. Landlords generally lease out to entrepreneurs for working the mineral properties, and are satisfied with a royalty. If there are defective provisions in the leases, Government may step in and lay

down correct lines. The State may spread out its influence under three categories ; Ownership, management and control. The question of ownership is a subsidiary matter, as management and control are vital issues. My Committee feels that except on theoretical considerations, the following arrangement is ideal from practical standpoint (1) the ownership of mineral lands may remain undisturbed, as such ownership is always subject to the right of Government in centralising their mineral policy on sound lines. (2) Management may be left to a statutory body or to private agencies where they have shown excellence, as the coal industry being a complicated matter, administration by the bureaucracy may often be the breeding ground of inefficiency. (3) Control must be left to Government who will chalk out a mineral policy and recommend measures in the interests of the industry. If the control is in the hands of Government, it is immaterial if ownership is technically taken over or not.

In all provinces except Bengal and Bihar, minerals belong to the state. Therefore, the acquisition of royalties is not an urgent problem especially when nothing prevents Government from exercising control over the working of mines. It cannot be said that in non-permanently settled areas where minerals belong to Government, Government have exercised the right of ownership in a very beneficial way. It is far from it, and this emphasises the need for a sound mineral policy without reference to the acquisition of royalties. The preservation of the coalfields from deterioration is the most urgent matter and that should be pursued without delay ; the nationalisation proceedings may take years which cannot be wasted.

My Committee has upto now got no evidence that better management can be ensured by Government under their direct supervision, but it is equally convinced that the situation cannot be improved unless Government come forward to initiate new policies and new expenditures on right and approved lines. Accordingly, my Committee pleads for the creation of a Statutory body charged with managing and conserving collieries and exploring coal resources in India. If Managing Agents agree to work under the limitations of Government control, there is no case for scraping them.

5. DISTRIBUTION AND MARKETING

My Committee is of the opinion that a Central Marketing Agency under Government aegis, should be set up. Prices should accordingly be fixed by the said Agency. It is for the Agency to see that there is grading of coal and that correct coal is despatched by a colliery. All the functions of marketing should be discharged by the Agency in which representatives of the Industry, consumers and Government should find a place. Regional or Zonal groupings under the marketing scheme will be necessary.

My Committee, as is stated, does not propose to touch on detailed problems of the betterment of coal resources in the country; they could be better dealt with by Associations connected with the coal industry. But it is much too anxious for the initiation of a sound mineral policy.

57. WRITTEN EVIDENCE SENT IN BY THE BENGAL LANDHOLDERS' ASSOCIATION 10, OLD POST OFFICE STREET, CALCUTTA.

I. CONSTITUTIONAL

1. The Dual control is not desirable. There should be Central control for the regulation of the control of all sorts of minerals including coal, for production and distribution.

2. A department should be established controlled by a board under the presidency of one of the members of H.E. The Viceroy and this board should consist of the representatives from the consumer industrialist and the producer of mineral including coal. There should also be boards for the industrial and mineral zones under the central board.

II. ECONOMICS OF THE COAL INDUSTRY

(a) *Structural organisation of the industry.*

3. The present system should continue.

4. Managing Agency should continue with effective safeguards for all interests.

5. The type of alliance is not always a healthy factor. The sole ownership sometime leads to exploitation in the form of low wages & higher price and so this type is not always healthy.

6. Government may own the collieries for their own requirement if the government is bent for the good of the people.

(b) *Ownership & management.*

7. We do not agree that there is any special disadvantage for the permanently settled area. The question of private ownership should be maintained. The principal disadvantages may arise about the labour & price. If the Central Government takes the control, we hope the disadvantage if any may be tided over.

8. No solution could be arrived at by taking administration by the Government on behalf of the owners.

9. The Government should have some control over the leasing out of the mineral rights.

10. The acquiring policy of Government will lead to many troubles & disadvantages. But Government should control the production & distribution of minerals including Coal.

(c) *Finance.*

11. In under capitalised concerns Government should arrange to amalgamate the neighbouring concerns of the same type & finance them on condition that they should follow the expert opinion. But if they refuse government may acquire it and work out.

12. In case of over capitalisation government should by legislation reduce the capital.

(d) *Production.*

We cannot answer this question.

17. If a Central board with subordinate zonal boards be formed as suggested in the Question 2., of the constitution, this board will be competent enough to fix the price or quota according to local necessity and conditions. As this board will be a representative of the State, producers and consumers so an agreed solution will be a binding on every one interested in production ; and distribution.

18. We agree to the complete regulation of different coal for different purposes.

19. We do not agree to the monopoly consumption.

20. The controlling board will be responsible for the inspection of despatching.

21. Specification could not be given by us.
(f) *Transport.*

22. The zonal system of distribution is preferable. But we cannot give the details of the zones.

23. Price should be kept at a practicable level as regards Rly. transport.

24 to 28. We cannot answer.

(g) *Price & Profits.*

29 to 34. We cannot comment on this question in details but there should be at least a maximum price for coal for consumers. Also in this the case of cokes for private consumption should also be considered. If a maximum price is fixed then we hope the middleman's profit cannot be excessive.

(h) *Taxation.*

35. We cannot answer.

(i) *National & International commercial policies.*

36. We cannot say whether there is any international treaty. But it can be suggested that government should consider the national commercial policy first of all before having any agreement for international trade. The national requirements, if any, the question of export may arise. We cannot give any detail data.

37. We cannot answer.

III & IV. CONSERVATION OF HIGH GRADE METALLURGICAL AND STEAM COAL.

38 to 53. We cannot give any answer in most of its parts but a general control by the suggested board should remain in these also.

54 to 63. We cannot answer this.

64. The development of Coal tar is a special necessity.

VI. MINING LEASES AND FRAGMENTATION

65 to 67. We cannot answer.

68. Government should control and fix the standard or Royalty and Salami.

69. There should be an economic unit for every concern. In any way fragmentation should be stopped.

(e) *Distribution & Marketing.*

70. An uneconomic concern is always undesirable and it is against national interest because it does not pay and the concern do not get best advantage out of it.

71. There should be enactments ensuring an economic size and we propose to take up the item no. (ii) and (iv). No. (III) also should be tried and we hope that landlords & tenant will response in this, we cannot support the principle of (1).

VII. OPINION OF NEW COALFIELDS

72. We cannot answer.

VIII. ADMINISTRATIVE MEASURE

73. We have no idea.

74. We should suggest that there should be a joint body for various kinds of cases and taxes and this body should consist of the representatives of the tax-payer and the government.

75. The unification is always good for the management of some of allied subjects of administration.

58. MEMORANDUM PRESENTED TO THE INDIAN COALFIELDS COMMITTEE BY THE TALCHER COALFIELDS LABOUR ASSOCIATION.

TALCHER COALFIELDS

1. LIVING CONDITIONS :—

The mode of living of Colliery labourer is extremely poor and far below the standard of requirement.

2. INCOME :—

The average income of workers of different departments is detailed below :—

(a) *Loader.*—On the average a loader loads 2 tubs (80 cft. capacity each) of cut coal per working shift. He is paid -2/6 per tub, thus his daily wage is -5/- +7/- D.A. making it -12/-.

(b) *Trolleymen.*—For 8 hours shift a trolleyman is paid -5/- plus -7/- D.A., making it -12/-.

(c) *Dresser.*—For 8 hours shift a dresser is also paid -5/- plus -7/- D.A., making it -12/-.

Items (a) (b) and (c) are paid by the raising contractors.

(d) *Unskilled Labour.*—The rate of wage of unskilled labour is -4/- to -12/- per day. The major portion on the average wage of -8/- per day with Rs.12. D.A. per month. There is no compulsory rule to govern the annual increment.

(e) *Skilled Labourers.*—The basic wage varies between -13/- and 1/-4/- per

- (f) *Clerical Staff*.—They are placed in the grade of Rs. 30—3—45—5— 60. The minimum qualification required is Matriculate for holding these posts. On this grade if a clerk joins at the 16th year of his age, he reaches the maximum of his pay at the 36th year of his life. No further prospect in his life is opened to him.

2. EXPENDITURE OF A, B. & C categories per head per day :—

Rice $\frac{1}{2}$ seer per head per day	-/3/-
Brinjal, Onion, Bhaji, Tomato, Tamarind, Chillies, Salt	-/3/-
Biri & Pan	-/2/-
Washing Soap	-/-/6
Clothing 4 piece in a year	-/-/6
Drink or opium	-/3/-
Gambling	-/2/-

TOTAL -/14/6

Daily indebtedness -/2/-

3. INDEBTEDNESS.

- (a) Indebtedness per season paid by contractors as advance 20/
- (b) Other sources of Indebtedness from local money lenders, merchants, shopkeepers etc.
- (c) Rate of Interest -/2/- per week per Re.

(d) Method of repayment—The contractor deducts his advance from the weekly payment and the demand of the rest of the money lenders are met from wages and the worker is forced to seek loan from another party. Thus he maintains himself and his family in this way.

4. OLD AGE SECURITY:

There is no provision of Provident fund, Pension or gratuity for the labourer in his old age. With the meagre earning it is humanly impossible for any of the men to save for his old age. So the whole family dependent on the labour is thrown into the street.

Those who work inside the pit are sure to lose the average longevity as they have to work in an unhealthy atmosphere and in a crude way.

Provision for pension, provident fund and gratuity should be made and those who are to work underground should be insured for life.

5. WOMAN LABOUR:

Sufficient leave and maternity welfare system should be provided for the female workers.

The female workers are not allowed to go underground according to Central Government Mines Act. They are provided work on the surface in the Collieries in British India. But curiously enough the female workers have to work in the pit underground.

6. TEMPORARY AND DAILY WAGE LABOUR.

On the weekly holidays they get no wage. They should be given wages for those days.

7. System of casual, privilege and other leave should be introduced.

8. The system of contract labour is not a desirable one. It is creating a middle man who is bound to exploit labour. The B.N. & M. & S.M. Railways to perpetuate this, called for serious comments. Besides heavy exploitation in money the following are the difficulties to which the labourers are put :—

(a) The coal raising is done on a contract system. For the contractor's labourers it is noticed that the payment is made always during off working hours and they are detained till very late hours at night. This is done every Friday and Saturday (Saturday being rest day). The labourers thus get very little chance of rest on the day of rest.

(b) Sometimes the payments are withheld for weeks together for non-attendance of work for the whole week or part of week due to some legitimate reasons of their own.

(c) For reasons as on (b) the labourers not only suffer from non-payment of wages but also, are punished in the form of reduction of food rations supplied by the contractor which are drawn by him from the Railway grain shop in a bulk.

(d) The payment to the imported labourers is made through their sardars by the contractor. The sardars draw the total weekly earnings of their labourers from the contractor in a bulk and while paying them individually they often misappropriate some of their earnings taking advantage of their illiteracy as well as, having no facility to approach the contractor or his agent.

9. Dwelling accommodation is not only scanty but the localities are kept unattended, unclean and unhealthy. A healthy locality is thus rendered unhealthy. The following are some of the serious things :—

Arched Dhowras with a very low roof have been provided for the dwellings of the labourers. They are in blocks of 20 units back to back in rows of 10 and the size of each unit is 100 sq. ft. in area with a varandah of 10/× 5/. The imported labourers are given one unit per family consisting of sometimes 7/8 persons. As regards the local men who come from distant villages, stay in the colliery during the working days only and have to accommodate themselves in a group of 10 to 12 persons in one unit of such dhowras.

(a) The dwellers of these dhowras have to cook their food in the open.

(b) Drinking water supply is very scanty and number of water taps are insignificant.

- (c) Bathing facilities are very poor. It requires improvement and such places require covers suiting to all seasons.
- (d) Latrines are insufficient and urinals do not exist. Men and women are to go in the same latrine.
- (e) Sanitation extremely poor for want of proper drains and want of sufficient scavengers.
- (f) From the burning of the coal fuel in the evening the whole of the labour settlement is screened with thick smoke clouds which is detrimental to their health and growth.
- (g) Due to want of proper screen or compound wall in each unit of dhowrahs no family can maintain their privacy and thus corruptions are much prevalent.

10. The labour Welfare Fund :—

The officers who are appointed now do not seem to have clean record of service under the old regime of the state. Real representatives should be taken from the union and the Rajasaheb of Talcher may preside and assume direct responsibility instead of his brother. There should be an annual budget, proper expenditure authorised by resolutions of the committee and supported by proper vouchers and all these should be audited by Government of India auditor as part of its own activities. Copies of the budget and audit reports be made available to the labour union and also be published.

11. EDUCATION

So far nothing substantial has been done for the labourers out of the said Fund. Prior to January 1945 there was no provision for education for the children of the labourers in the colliery, either provided by the State or the Railway administration. The workers then united and opened a Primary School for Hindi speaking children with the help of *intelligentsia*. They bore all the expenses of the school. Lately the Talcher Labour Welfare Fund have decided to open classes for Hindi, Tamil, Telugu and Oriya languages. Local labourer gets little benefit from the school as none of them have their family staying with him.

59. WRITTEN EVIDENCE OF THE BUYERS & SHIPPERS CHAMBER, KARACHI

*Subject :—*Questionnaire issued by Indian Coalfields Committee.

I am directed to communicate my committee's views in connection with the enquiry in question as follows :—

It is painful to observe the manner in which coal is being exploited in this country. While the technical deficiencies of the coal mining industry are too well known to need recapitulation it cannot be too strongly emphasised that the existing state of affairs cannot be tolerated in the future when India embarks on large scale industrialisation.

India's per capita output of coal is one of the lowest being	0·07ton
as against United Kingdom's	5·00 tons
Belgium's	3·50 tons
United States'	3·00 tons
Australia's	2·00 tons
and South Africa's	1·15 tons

As it is, India, in comparison with the other large coal producing countries, has very poor reserves. According to competent authorities the total world reserve of coal was 7,397, 500,000,000 tons. The most reliable figures for Indian coal reserves as given are

60,000 million tons

of which 20,000 million tons were workable.

Thus, with a population of 20 per cent. of the world

The total Indian reserves work out at

0·8 per cent.

and the workables at

0·27 per cent. of the world's coal reserves.

Then, taking 5,000 million tons as the reserves for good quality and 1,500 million tons as good quality coking coal, it would appear that even with the present annual demand of 6 to 7 million tons of good coking coal for metallurgical purposes, Indian reserves could not last long, as of the 1,500 million tons those available would be of the order of 60 per cent., i.e., 900 million tons. There is every reason to believe that with the increase of metallurgical activities more and more coal of the coking character would be annually consumed in the future, and unless the large amounts of low grade coal, which form about 75 per cent. of the total reserve, are treated properly to be useful for metallurgical purposes, it is extremely likely that all good coking coal will have been consumed *in the life span of a single individual*. It is therefore necessary to emphasise the utmost need for coal conservation and for the use of alternative fuels in the shape of agricultural washes, water powers and cheap gases on the one hand, and encouraging the use of inferior grades of coal, on the other, should be immediately taken up. In this connection, the fact is stressed that expeditious researches for the improvement of low grade coal are a basic necessity which could not be delayed any more.

At present, nearly half of the coal raised is consumed by the Railways, while the Tatas take up over 5 million tons or nearly a quarter of the total output. Our reserves of first class coking coal, suitable for metallurgical purposes are strictly limited and it would be wasteful to employ them in inferior uses; they should be conserved for the expansion of our basic industries.

The utilisation of good coal by Railways in India is indeed a colossal waste, and an economic crime. Every year Railways use 10 million tons of good coal which could be substituted by soft coke incidentally recovering in its manufacture.

30 million gallons of petrol representing 25 per cent. of India's annual requirements in normal times,
 120 million gallons of diesel oil,
 32 million gallons of phenolies, and
 72,000 tons of the fertiliser ammonium sulphate.

On October 10, 1945 in the House of Commons, Mr. Shinwell stated that petrol produced from Sterling area sources was insufficient to meet the needs of the Sterling area. Can there be any stronger argument than this for developing power alcohol industry in this country which can easily produce about 25,00,000 tons per year!

The figures are enough to indicate the extent of loss incurred by this country as a result of the present wasteful methods practised in the utilisation of the limited coal stocks. It is also pointed out that some of the progressive countries in Europe are already using soft coke for locomotives and that the use of a blend of 80 per cent. coke and 20 per cent. coal is not unusual in these countries. One should consider how far the Indian Railways have progressed in this direction to economise and lengthen the life of the attenuated sources of supply of good coal. A thorough investigation therefore of this part of coal conservation without delay, is the first necessary step in arresting what might be an impending fuel shortage in our lifetime alone.

Referring to the use of soft coke, the same sorry tale of wastage and lavish expenditure without adequate return is revealed in the improper use of coal. About 1½ million tons of soft coke in the Indian coalfields are wasted by the method of stack burning where a volatile products and part of the coal are burnt without the possibility of any recovery. If these 1½ million tons were retested and the tar and gases collected,

4.5 million gallons of petrol,

18 million gallons of diesel oil,

4½ million gallons of phenolies, and about 10,000 tons of ammonium sulphate could be recovered. The remedy is for the coal magnates to combine and set up a large number of carbonisation plants in the coal fields to help the conservation of coal. The present need for tar and petrol could be met by erection of a type of low temperature carbonisation plants some of which are working in different educational institutions and which supply gas required with appropriate yields of tar and petrol.

In Soviet Russia, it has been the practice to have one iron and steel works in the coalfield and another at the iron ore mines. In this way, the wagons carrying coal to the smelter at the iron ore mines can return with iron ore for the smelter at the Collieries. In both cases the wagons are fully used and at both these linked works the waste gases from the coke-ovens provide fuel for steam raising and power generation, while the tar, and other by products of the distillation of the coal provide materials for further utilisation i.e., production of benzene, toluol, etc., to say nothing of coal tar dyes.

In conclusion my Committee note with regret that Sir Padamji Ginwalla, Kt., has not been associated with this Coalfields Committee. Sir Padamji has varied and valuable experience in regard to economic consumption of the coal resources of India. The Committee would suggest that the members of the Indian Coalfield Committee be provided with a copy of his valuable brochure entitled:

"Industrialisation Through Electrification of the Railways"

and if it is not too late my Committee would press upon the Government the desirability of appointing him on the Indian Coalfields Committee, and if it is too late, they would suggest the Committee to co-opt him. The great depth of poverty and lack of purchasing power which is now the privilege of the Bengal countryside along with the rest of our great country can be considerably alleviated by adopting the proposals which may sound revolutionary to our conservative Railway Bosses, but which the Committee feel certain would result in endless benefit conferring a great number of blessings upon the poor peasants of Bengal. Apart from this pregnant factor the initiation of projects suggested by Sir Padamji would be a very useful source for employment of personnel skilled and unskilled, a glut of whom by release from the Army is causing the Government now such a headache. No better use can be made of this opportunity than implementing some of the schemes above mentioned with consequent advantage to employment of labour helping forward the industrialisation of our country to which the Government is pledged.

As regards the questionnaire issued by the Indian Coalfields Committee, my Committee's replies to some of the questions are as follows:—

PART I—GENERAL

Questions under this heading are more or less technical and in the Committee's opinion can be satisfactorily answered by a Colliery Association.

PART II—QUESTION 9

The Committee consider that in view of the Planning Programme which envisages large scale industrialisation, it is highly improbable that there will be any surplus coal left for export and further, the Committee are very much doubtful of the utility of a sterling question.

PART IV—QUESTION 17

The Railways require payment of every Railway receipt in its entirety, irrespective of the fact whether all the wagons consigned under the receipts are delivered or not. Once this freight is paid the Railways conveniently forget about the short delivered wagons and despite repeated reminders claim exemption. An obligation should be laid on them not to seek out any flimsy excuses but to deliver the consigned wagons in full and failing such delivery to settle claims promptly and satisfactorily.

PART V—RAISING COSTS

This portion could be dealt with by Colliery Owners, but the attention of the Owners should be drawn to the new German Coal Mining Machines. The U. S. A. Bureau of Mines reports that investigators in Germany had discovered a mining machine known as "Coal Planer." The machine which combines cutting and loading operations is capable of mining 800 tons of coal daily. The Planer is a plough-like machine using the same principle as a carpenter's wood plane. The costly tasks of cutting, drilling, blasting and loading coal are completely eliminated in most instances by the invention.

It is earnestly hoped that my Committee's above views will be taken into due consideration, by the Indian Coalfields Committee.

QUESTIONNAIRE II.

PART I—CONSTITUTIONAL

The general trend in advanced countries is a realisation and acceptance that all underground wealth should belong to the State, to the Nation and the public at large. The Government of India are also coming round to that point of view and my Chamber would endorse this view and suggest that all Coal Mines should be nationalised. We do not know whether a Mineral Department has been created and under whose control it functions, whether Labour or Department of Industry. Anyway, if there is a General Department for minerals, coal could easily become a section of it. If Nationalisation is agreed to, then questions in Part II, Nos. 3—12 will not require to be answered.

PART II.—ECONOMICS OF THE COAL INDUSTRY

Production. It is a definite fact that the *per capita* production of coal by the labour employed is of a very poor type.

The Indian Labourer raises
only 131 tons a year

Against :—

Britain's	298 tons " "
Japanese	207 " " "
French	210 " " "
Germany's	311 " " "
U. S. A.'s	671 " " "

This is entirely due to the disgracefully low wages paid to the Coal Labour. We give below a statement of the Average Daily Earnings of the Miners in India and other countries :—

Country	Average daily earnings of the miner in 1936.		
	Rs.	A.	P..
Russia	13	1	5
U.S.A.	10	12	0

Australia	9	8	8
Ruhr	5	2	8
Germany	7	12	3
Great Britain	6	15	1
Upper Silesia	6	12	8
Netherlands	5	8	8
Poland	4	4	2
Japan	2	9	2
Belgium	2	8	8
France	2	6	6
South Africa	1	5	4
India	0	10	3

These wide differences are often attributed to the difference between the efficiency of the Indian miner and that of the foreign miners, but if we examine the statistics we find that they cannot explain the whole of the difference in earnings. The wage cost per ton of commercially disposable coal is much lower in India than in other countries as the following figures will show :

Country	Wage cost per ton as commercially disposable coal in 1935			Share of wages in the pitmouth value of coal
	Rs.	A.	P.	
Great Britain	5	9	9	63·3%
Germany	5	2	2	46·7%
Netherlands	4	8	3	53·4%
Belgium	2	12	3	48·1%
Poland	2	11	0	46·2%
France	2	6	11	48·3%
India	1	1	7	39·0%

In 1929 Mr. Amrit Lal Ojha, a prominent colliery proprietor who appeared before the Royal Commission on Labour as a representative of the Indian Mining Federation, admitted in his oral evidence that "Wages form only 25% of the total cost of producing coal (or 19·2% of the average pit-mouth value). Out of Rs. 3 as the cost per ton of coal, the wages of the miners amounted to only annas 12 per ton, while the royalty was annas 4 and the overhead charges Rs. 2 per ton. It may rightly be said that Labour in the coal mines is sweated.

Labourers are still undisciplined, unpunctual irregular, unenterprising, illiterate, superstitious and wholly unprepared for the new work of shifts, registers, regular output and discipline into which they have been plunged by the ever changing laws of the industrial world. They are the creation of the surroundings in which they are made to live and work. Neither the Government nor their employers have made any effort to educate them and to relieve them of their burden of superstitious and of unprogressive customs and habits. Their standards of living have not only seen no improvement but in the last four or five years have sunk in the scale on account of the fall in their earnings, the bulk of

which is now spent on cereals which fill the stomach but do not make an adequate diet. Those who stay with their families in the coalfield manage to live by borrowing money either from chaprasis or from kabulis or by purchasing their daily necessities on credit, etc. Their indebtedness is daily increasing, while their earnings are steadily falling. Acute poverty compels them to borrow at a high rate of interest, the payment of which further increases their poverty and thus a vicious circle of poverty, debt, interest and poverty is created. No wonder they have become a crowd of inefficient workers. The mining regulations of 1929 have reduced their earnings all the more by providing for the elimination of women from underground works. The employers have gone a step further. They are gradually replacing women by men even on the surface where they are permitted by law to work and employ too many labourers for the contract work which is more or less fixed, thus reducing the labour earnings without lowering the rates of wages, a device which helps them to escape public attacks or the menace of labour strikes. All this has resulted in keeping many families semi-starved in lowering the standard of living of others, and in demoralising the rest.

Even as regards, health and housing, the condition in spite of the improvements effected, is far from satisfactory. There are only one-room houses. They are illplanned and overcrowded, lacking in privacy, ventilation and accommodation, and always wanting in sunshine. There are no latrines, no bathrooms and in most cases no pukka drains to carry the foul water and no proper arrangement to remove the refuse. Sweepers who are meant for cleaning the "Dhaurahs", as the colliery houses are called, generally neglect their duties and keep themselves busy in cleaning the Sahib's bungalow or Kothi, or the quarters of colliery Babus. Colliery doctors, who are in charge of sanitation and medical aid are, in most cases, inefficient and unqualified, and rarely discharge their duties to maintain the sanitary condition of the collieries. The qualified ones attend the managers or agents and their families, and serve their friends who are employed in the collieries as clerks or overmen. The advantage enjoyed by the colliery houses in being situated in open spaces has been neutralized by the fact that they are constructed in rows on back to back houses and remain most of the time, particularly in collieries which manufacture coke by primitive methods, surrounded by and stuffed with the dense smoke of burning coalheaps. They are homes of diseases like malaria and tuberculosis. If not actually killing the labourers, they are certainly devitalising them. So, it is not surprising that though the coal industry is about a century old, the migratory character of its labour is still providing a measure of insurance against the effects of various changes which may reduce, interrupt, or destroy the earning capacity of the workers. In sickness and in maternity, in strikes and in lockouts, in unemployment and in old age, the village home is a refuge for many.

Further, medical facilities available in the coalfields are very poor. Inefficient doctors and pocket dispensaries can hardly afford effective medical aid. It is true that labourers generally prefer their own country herbs to allopathic medicines unless the company offers them on the temptation of some monetary allowance during their sickness on production of a medical certificate. But no one can deny that their prejudice against allopathic medical treatment is largely due to the maltreatment they suffer at the hands of unsympathetic and careless doctors.

Even in respect of accidents there is still much scope for improvement. As compared with other countries, the Indian accident rate seems to be higher even though the geological conditions of her coalfields are more favourable. Indian mortality rate per million tons of coal extracted seems to be the highest of all coal-producing countries, and the rate per thousand of persons employed is higher than that of many. What is worse, the victims of all these accidents, are very poorly remunerated, if at all. "If serious accidents are due to the fault of the victims, they will not be compensated." This clause of the Act (Workmen Compensation) is certainly being used to deprive many men of their rightful compensation.

Lastly no welfare work worth the name (except the little that the Mines Board of Health are doing) has been undertaken. Labourers enjoy rest-days at their own expense. Their employment is also temporary. They can be thrown out at any time without any consideration of the service already rendered. There are no organised schemes of Sickness, Insurance, Maternity Allowance, and Old Age Pensions. If any sickness allowance is paid at all, it is insufficient and discretionary. Labourers have generally to borrow money to pass their periods of sickness. Women return to their villages to give birth to children. In the absence of any financial or medical help in the collieries, child-birth is more expensive in the collieries than in their own homes. With the exception of three or four collieries, no one has organised any welfare funds. No one has provided creches and baths. Even in winter, labourers have to wash themselves in the open air. No separate baths are provided for women. No recreation is available except liquor. The great increase in its consumption in practically all important coalfields has made the miners more irregular, unpunctual, and incapable of hard work. In short, Indian miners cannot stand comparison with those in other countries in respect of remuneration, standard of living, housing, medical facilities and other economic benefits. The poverty of the worker is the chief cause of his comparative inefficiency. He is ill-clad, ill-housed and ill-fed.

A passive partner in the slow productivity are the Colliery Owners themselves. These people who live upon the sweat of the brow of the miners have contented themselves with amassing their fortunes without spending anything for equipping their factories with modern machinery

In 1932, 30% of the Collieries in British India were not worked mechanically. The use of electricity is also in an equally microscopic proportion.

24 % take advantage of electric drive, as against

63% in Great Britain

The total consumption in Indian collieries was 80,721 h.p. against Great Britain's consumption of 13,55,262 h.p.

Barely 157 coal-cutting machines were in use against 7, 137 in Great Britain.

Electric drills are non-existent in the bulk of the Collieries. The machine mining in U.S.A., Belgium and France is far more than even Great Britain.

They obtain :

72%	} of their respective output by	
81%		
60%		
		mechanical coal getting and
		machine mining

Labour conditions in the mines therefore require to be drastically improved if it is intended that the production should be stepped up to cope with the demand that will arise from the vast programme of industrialisation which is now slowly being set into motion.

Colliery owners, too in their greed have been and are still working their collieries so wastefully that it has been reported that 50% coal is lost during working. Such a heavy loss can hardly be tolerated especially if much of it is avoidable. Indian coal resources particularly of the first class and of coking, coal are so limited that the country can hardly afford to lose even one ton of coal. We should not only put a stop to all waste but should also try to conserve every ton by preventing misuse of coal and by practising economy in its consumption. Not to speak of the first class, even the resources of Indian second class coal are nothing as compared to those of the big industrial countries.

Transport: Undoubtedly transport has frequently proved to be the bottleneck in regard to distribution of coal and the party responsible for that primarily are the Railways who refuse to move with the times and still continue to play with the same old antiquated method of power as in the days of Watts and Stevenson, namely steam. If the coalfields were electrified by production of thermal electricity, by utilising low grade coal of which there are in exhaustible supplies, it would be found that this new mode of drive would allow for quicker get-away. It is an undoubted fact that the average train load of the electric train is anything from 15% to 25% more than that of the steam train; this must effect not only a reduction in the number of locomotives but also a considerable saving in the overheads and running cost per ton mile. It is an established fact that for practically the same number of hours worked per day, the goods electric loco does 60% more engine-miles than the steam loco and the passenger 30%. Its net ton-mileage per day is 100% more than that of the steam loco. This must necessarily result in the reduction of the number of locomotives required for the same amount of traffic and consequential saving in running and other expenditure.

It is proved that the average speed of through goods trains on the electrified section of the G.I.P. is more than 25% higher than on its steam section and exactly twice as high as on the E.I.R.

This in spite of the fact that the gradients on the electrified part of the G.I.P. are comparatively very steep as the route goes along mountainous territory for a fairly long distance. This itself makes the comparison even more glaring and weighs the pan for the electrified G.I.P. as the E.I.R. train is more or less flat. It is noticeable that the haulage of goods takes twice the time for the same distance on the E.I.R. than it does on the G.I.P. Can there be any more damning condemnation of the present transport system in the coalfields; My Chamber would strongly urge that your Committee should reprimand the Railway Board for permitting the existing state of affairs to continue as it has done and strongly press for electrification of the coalfields as advocated by Sir Padamji Ginwalla.

PART III, IV and V

My Chamber have given their views very fully in their earlier representation. Apart from the electricity required for working the Railways this power should be made available for working all the Jute Mills on both banks of the Hooghly and Government should compel all the Jute Mills to scrap their present steam raising plant and replace it by modern method of electric drive. We quite realise there will be a storm of protest against this new method and Heavens will be moved, to frustrate this substitution, but we suggest the Government should be strong enough to resist the vested interests and effect this much-needed improvement which whilst reducing the pressure on our fast diminishing stock of coal would also permit a larger number of wagons to be available for every kind of traffic. We mean the wagons now employed for supply of coal to these Jute Mills if replaced by electric Grid would be available for other use. The one startling fact to which we want to draw the attention of the Committee is that if by reason of the present wasteful method of consuming coal the quantity of coking coal becomes exhausted as it is feared it may be in the course of a span, India will be deprived of the advantage of producing steel, that means she will have to be at the mercy of other countries to obtain the steel necessary for Defence as well as Industry. Steel, just as much as Coal today, is one of most important strategic materials and my Chamber would therefore impress upon the attention of your Committee very forcibly this very pregnant and menacing situation which faces our country and they therefore trust that you will immediately recommend the substitution of electricity in the coalfields. We are quite aware there are lots of persons interested to see India fritter away her great resources in minerals and see her bankrupt in these important elements of advancement of the nation through industrialisation. It is the duty of your Committee, I am asked to submit, to awaken the country to the great danger facing it and chalk out a policy for it to pursue to safeguard against threatened shortage of coal.

60. Written Evidence of

THE ALL INDIA MANUFACTURES' ORGANISATION QUESTIONNAIRE I

1. (a) Yes, the conditions still prevail largely.
- (b) We request a brief statement on the action taken by the Government and its results before we can say whether the action was adequate.
2. The emphasis laid twenty years ago on the export of coal is not valid now.
3. Grading of coal proved helpful in the export trade.
4. This question can be dealt with satisfactorily by means of statistics only. It is hardly a matter for opinion.
5. Yes.
6. Question mainly for railways and steamship companies.
7. The present grading of coal is based largely on export considerations. Regrading is necessary to suit the requirements of industry in India. Regrading should be confined to seams as a whole, as the grading of sections of seams is likely to lead to fraudulent practices.
8. Grading of coal for the internal market is very desirable as Indian Industries generally have not yet taken to buying coal on the sampling and analysis of each lot. Grading should be made compulsory.

13. Encourage transport of coal by sea to various Indian ports.

22. It is desirable to introduce seasonal rates for the transport of coal by rail.

24. A general development in favour of cutting coal by mechanical means is desirable.

QUESTIONNAIRE No. 2

I may inform you that one of the important questions referred to in the questionnaire No. 2 is the constitutional problem i.e., whether the management of mines and mineral development should be dealt with by the Central or Provincial Governments. In this connection we are of opinion that the question of control over mines should be vested with the Central Government.

We also understand that it is under the consideration of the Central Government too to have these under its control. This may be due to the experience gained by them during the war. Even the opinions given by experts in the line seem to favour for a centrally controlled mineral policy for the good of the whole country. Another reason for such control is that the Central Government is the owner of large mines and also are the biggest consumers because the railways are owned by them. Added to this coal is a key industry. Its consumers are extensive and expensive and their interests could be better safeguarded by the Central Government than by the provinces where actually the mines are situated.

In order to regulate the machinery it is advisable to create a Central Board with a Member of the Viceroy's Executive Council as Chairman. The Board should also be constituted to have representatives of Central and Provincial Legislatures, Industrial and Trade Organizations, those connected with the industry and a representative of the Geological Survey Department. The Mining department should act as an executive of the proposed central authority. The task to formulate policies in respect of finance, labour welfare, production, distribution, marketing, transport, prices and improvement in processing and methods of mining, etc., should be left to the proposed Central Board. The underlying principle in formulating these policies should be to provide coal at a price which should not only be profitable to the producer and reasonable for the worker for ensured better standard of living. Attention should be paid to the grading of coal while policies are being laid down for the distribution of the same. Grading is to be done according to the use to which coal could be best employed. Wastage of good quality coal other than for which it is meant for should be avoided. Research and investigation should go on side by side with the production of coal and other minerals so as to find new outlets for their consumption and for regulation of its distribution. We are glad to note that the committee proposes to start oral evidences with effect from 8th April 1946.

61. WRITTEN EVIDENCE SENT IN BY THE COAL MERCHANTS ASSOCIATION, AMRITSAR.

I suggest that superior low volatile coal of superior quality suitable for coaking purposes may be conserved for the use of iron industry and high volatile steam coal be conserved for shipment and loco. The rest of Bengal coal be made available to all industries in free market. The state should however encourage the use of other provincial coals (like C. P., Punjab, Baluchistan and Sindh) in the parent provinces by granting special concessional freights. No central marketing agency for coal is desirable and if enforced will encourage monopolisation and heavy cost resulting in high prices. The coal price should always be kept at prewar level of Rs. 4 to Rs. 5 per ton f.o.r. colliery siding so as to help the industries and the industries must have free choice in the selection of the coal except of course with the above reservations.

If any Central Agency is considered unavoidable then of course it must include all the present-dealers in the coal trade. The responsibility for correct loading can only rest with the colliery management under whom the loading labour and contractors work. The coal must be divided into four sizes. Steam above 2", rubble between 1" and 2", smithy $\frac{1}{2}$ " to 1" and dust below $\frac{1}{2}$ ".

Special attention need be paid to quick transport of Baluchistan and Sindh coals so as to get better results. Their catching fire while in transit besides being helpful is rather disadvantageous to the transport.

62. ORAL EVIDENCE OF MR. F. W. A. CARPENTER
AND MR. R. DUTTSON REPRESENTING THE
CALCUTTA SELECTED COAL ASSOCIATION,
AT CALCUTTA ON 28TH JUNE 1946.

Question.—In what circumstances was your Association formed ?

Answer.—More than a decade ago, certain larger interests in the coal producing field at various times tried to rationalise the better grades of coal in this country but for a very long time, due to trade jealousy, etc., they could not get together. It was really a culmination of the effort, which proved rather premature in 1934, at a voluntary restriction scheme. The Association was not formed because of harmful competition between certain coal companies. To a certain extent the purchasing policy of the Railway Board was responsible for the formation of this Association.

Question.—Are the activities of the Association confined to producers of selected coal only ?

Answer.—That was the original intention, but it is hoped to expand them to include grade I.

Question.—One of the objects of the Association is defined as being to adjust or control raisings of selected grade coal by price. Has any occasion arisen so far to put this object into practice ?

Answer.—Actually the Association has been in operation and has never functioned except as a cartel body. The primary object was to avoid over-production of coal in the interests of rationalisation of the industry. In practice the Association remains dormant in times when production falls short of demand.

Question.—Don't you consider that this very selected form of association could be interpreted as a cartel for the purpose of maintaining high prices ?

Answer.—Yes. We had that very much in mind when we formed it. We were sufficiently powerful to maintain the prices at what we considered would be an economic level.

Question.—In article 17 of your Agreement you empowered the Committee to fix minimum prices for any particular class or classes of coal. That is an attempt to prevent prices going down below a figure, and by combination the Association is holding a pistol more or less at the consumers and saying "you can take your coal only at those prices".

Answer.—Yes, that is so.

Question.—You stated just now that it was really with a view to see that prices, particularly for coal required by Railways are kept up by some sort of action by the producers that your Association was formed. That might also apply to the prices of coal required by steel companies ?

Answer.—Yes, to steel companies or any other consumer.

Question.—How do you determine basic selling prices for the purposes of these agreements ?

Answer.—We generally fix a price which we consider gives a fair return to the producer and affords sufficient protection in the trade.

Question.—Entirely at the discretion of the Committee after considering the data ?

Answer.—Yes.

Question.—When you talk of protection of the trade, do you mean protection of the members of the Association only ?

Or you consider that any lead taken by the members of this Association in this respect would set an example to the rest of the trade ?

Answer.—Definitely the latter was the intention.

Question.—You have actually not yet used your powers to control prices ?

Answer.—Yes, we are responsible for the present free economic level of prices. It was our Association that brought the level of prices of coal to its present economic level. Otherwise this was getting out of the hand.

Question.—What were the prices prevailing at the time when the Government first introduced the control prices ? Have you any idea ?

Answer.—They went up step by step. The first level of prices was Rs. 5-8-0 for selected grade coal and Dishergarh coal.

Question.—And at the time of the fixation of prices by Government what were the market prices ?

Answer.—When we were selling our coal at Rs. 10-3-0 the ordinary price was Rs. 16 and at the black market price was Rs. 18.

Question.—Can you tell me the output of producers of selected coal in tons ?

Answer.—Average is 6½ million per annum.

Question.—What proportion of the total output of selected grade coal is represented on this Association ?

Answer.—Something over 60%.

Question.—So anybody who requires selected grade coal cannot have his requirements satisfied beyond that balance of 40% without coming to you or he will need to use other types of coal.

Answer.—Yes.

Question.—You had occasion to fix the minimum price. Were individual price quotations subject to that minimum price or was the minimum price more or less a uniform quotation ?

Answer.—More or less a uniform quotation.

Question.—So the object was virtually to fix a definite price for all the members ?

Answer.—That is right.

Question.—Then I find there are certain restrictions regarding dealers also. Certain rebate is agreed to be paid to middlemen on certain conditions and he is expected not to quote to consumers prices for selected grade coal which

are below the basic selling prices. Was the whole object to keep up prices ?

Answer.—Yes.

Question.—So it is a partial monopoly in the trade so far as this particular type of coal is concerned ?

Answer.—Yes.

Question.—And since the prices have been fixed by Government, no occasion arises for this Association to fix the minimum price ?

Answer.—With the exception Sir, that Government have been more guided by this body than any other in the fixation of prices.

Question.—If in the future when the emergency is over and controls are taken away the decision of the industry and the Government may be to return to a system of free competition as previously before the war, you definitely are of opinion that there is then a place for this sort of an Association ?

Answer.—Definitely. It would then be restricted to selected coal and grade I coal.

Question.—In a scheme of free competition, free supply and demand, free play of prices, will not this Association be construed as a restraint on the trade ?

Answer.—Well, we had that in mind. We might be accused of that but I think the reply is that, controlling as we do this coal, we would not be so foolish as to fix prices at an unreasonable level. But the final power will remain in Government's hands.

Question.—The existence of an Association of this nature might precipitate some drastic action by the Government in case its power is mis-used.

Answer.—That is so ; it might have this power but why assume that it will be mis-used.

63. ORAL EVIDENCE OF REPRESENTATIVES OF THE COAL IMPORTERS' SYNDICATE, LAHORE.

The Syndicate has been formed by certain coal merchants handling the import into the Punjab, on behalf of consumers, of coal from Bengal, Bihar, Baluchistan, Sind and Kashmir. Punjab coal is also handled.

Punjab coal costs Rs. 30 to 35 per ton at Lahore as against the cost of Rs. 25-5-0 for Bengal coal. Moreover, the former is inferior in quality and experience has shown that one ton of Bengal coal is equal to 1½ tons of Punjab coal which besides contains sulphur and is liable to spontaneous combustion. Baluchistan coal costs Rs. 30 to 40 per ton at Lahore and is about the same quality as Punjab coal. The coal from Kashmir which is similar in quality costs about Rs. 67 per ton at Lahore.

In spite of obvious draw-backs ; coal from round about Punjab is consumed in fairly large quantities as Bengal coal is not readily available and it is not possible for consumers to wait indefinitely on the off chance of getting an allotment from Bengal. Consumers would probably take Bengal coal even if it costs Rs. 100 per ton. So, even if the price of Bengal/Bihar coal rises to Rs. 60 or Rs. 80 per ton, following the lifting of price control, consumers will not mind, as industry is suffering from want of good coal.

The principal use of coal in the Punjab is in brick kilns. Coal is also used by Cotton ginning Factories, Oil Mills, Flour Mills, Rice Mills, Ice Factories and Steel mills.

Price fixation for consumers like Railways, Steel Mills, Export and bunkers might be maintained but it is most desirable to withdraw control in respect of other consumers.

Zoning has certain advantages but it must be realised that the Punjab and Baluchistan coal can be used only for brick burning. A centralised marketing agency controlling the distribution of coal all over the country will not be beneficiary and free trade is the only right way.

A reduction in railway freight rates on inferior grades of coal from Bengal/Bihar would probably give a definite fillip to their consumption in the Punjab.

Section VIII

CHAMBERS OF COMMERCE

64.—WRITTEN EVIDENCE SENT IN BY THE FEDERATION OF INDIAN CHAMBERS OF COMMERCE AND INDUSTRY, NEW DELHI.

I

GENERAL

Question No. 1.—Part I of the question relates to control by the State over methods of extraction, first working, depillaring, rotation and isolation of workings, etc. As these subjects are of a technical nature, the Committee would leave them to be answered by the interests directly concerned.

As regards Part II, the functions of the Coal Mines Stowing Board at present relate mainly to protective and other measures. The establishment of this Board has, no doubt, tended to reduce the dangers threatening the coalfields at the time when the previous committees made their enquiries, but the measures taken so far have been more or less tentative and have not resulted in the wholesale stowing operations contemplated as a result of the recommendations put up in the past. The Committee are of opinion that a greater progress would have been achieved by the introduction of a statutory authority on the lines suggested by the 1937 Committee.

II

GRADING AND EXPORTS.

Question No. 2.—The Committee are of opinion that, if the plans for industrial development, which are being envisaged at present, are put into effect, the consumption of coal in the country is bound to increase and it will be unwise, therefore, to lay the same emphasis on the export of coal as was laid by the Indian Coal Committee in 1925. In view of the uncertainty of these plans as also the experience of the coal trade in the years following the close of the first world war, the Committee would, however, hesitate to say that all exports of coal should cease. Moreover, for political and other reasons of good neighbourliness, there are certain countries such as Burma, Ceylon, Malaya, etc., to which India will have to supply coal. The Committee, however, are against exporting metallurgical coking coal under any circumstances.

Questions Nos. 3, 4, 5, and 6.—As the Committee do not think that India stands in any need of stimulating the export trade of coal, they are not answering these questions.

Question No. 7.—The whole question of regrading of coal seams should be carefully investigated. It would seem that regrading of all the coal seams may not be necessary. Coal Grading Board, however, should have powers, under certain conditions, to regrade any coal, which appears in the grading list.

Question No. 8.—Grading of coal for the internal market is just as desirable as it is for the external market.

Question No. 9.—The view of the coal mining interests, in regard to this question, is that quotations in sterling will not assist them in the overseas markets.

III

PORT FACILITIES

Question No. 10.—Loading facilities at the port of Calcutta are very inadequate. The main difficulty is the paucity of stacking ground. Even with the limited number of shippers, who have been permitted to operate during the war, stacking space at the docks has been most inadequate and the situation will be more acute, when there are a larger number of shippers operating and a variety of different grades and sizes of coals to be held at the docks waiting shipment. The number of berths is also inadequate.

Question No. 11.—The facilities for discharging coal at Indian ports are very inadequate and in some cases primitive, resulting in unnecessary expense and waste. The Committee are of opinion that wherever the nature of the port permits, attempt should be made to provide ideal conditions, which are the discharge of coal direct into wagons with the steamers lying alongside the berth. Installations of this sort will not only help in quicker handling of the cargoes but will also prevent wastage through breaking of the coal.

Question No. 12.—The question can be best answered by the interests directly concerned.

IV

RAILWAY FACILITIES

Question No. 13.—The Committee are of opinion that the railway facilities in the coalfields and elsewhere are not adequate to handle the present despatches of roughly 25,000,000 tons per annum much less the estimated future requirements of 32,000,000 tons. The importance of coal transport cannot be over-emphasised as on it depends not only the prosperity of the coal trade but also the success or failure of the development plans of the country. There should be a thorough examination of the Railways' ability to cope with the coal traffic. This examination should not be confined only to the despatching end but conditions at a number of import and junctions should be thoroughly investigated. It would seem that at present the greatest bottle-neck occurs with the E.I.R., which incidentally handles a very large bulk of the coal traffic. A thorough enquiry should be made into the operation of this Railway and facilities provided by it for the movement of coal. From the periodic fluctuations experienced in the past, it would appear that coal has a seasonal traffic and that, in certain seasons of the year, the Railways are able to deal with the coal traffic and that, at other seasons they are unable to deal with the full demand. Unfortunately, the busy season for coal coincides with the busy season for a number of other commodities and this is one reason why coal transport is always in difficulties from about December to May. This is a very serious

matter for the coal industry and the only solution is that the Railways should equip themselves so as to enable them to handle the peak traffic.

Another point to be noted in this connection is that maximum labour attendance at the collieries coincides with the maximum traffic movement in connection with foodgrains so that, when production of coal is at its peak, traffic facilities for the industry are at a minimum. Railways complain about the fluctuations in production and collieries complain about the fluctuations in wagons supplies, with the result that a vicious circle has been created. Remedies can only be found by mutual consent and co-ordination. The following steps are suggested in order to meet the situation.

(1) creation of suitable labour forces to maintain steady production in all periods of the year, and

(2) provision of special trucks suitable for coal traffic, which should not be diverted for purposes other than coal traffic.

As regards the number of wagons, it is open to question whether there is an overall shortage of wagons, since the Railway Budget figures recently published appear to indicate that there are enough wagons in the country. The difficulties, which are being experienced in transporting coal at present would, therefore, appear to be due to operational cases rather than due to the lack of rolling stock.

Question No.14.—There does not seem to be any standard system of supplying wagons to collieries at present, and the failure to implement the recommendations for a 10-hour system has been mainly due to the shortage of engine power. According to the information at hand, the colliery owning interests would not mind any system of supplying wagons provided that the same resulted in quicker turnover and that wagons were available for all the 24 hours of the working day.

Question No.15.—The conditions regarding coal supplies will continue to be adverse for a long time and the Committee fear that, if the special priority system of allotment is abandoned, it will lead to chaos. The Committee, therefore, are of opinion that until adequate supplies of coal are being produced and the Railways are in a position to handle traffic effectively during all seasons, it may be necessary to continue the priority system of allotment.

Question No.16.—The installation by collieries of weigh-bridges is beneficial both to the collieries concerned and to the Railway Administration. The Committee are of opinion that the rebate of one anna per ton should be renewed to encourage installation of such weigh-bridges.

Question No. 17.—Although the present system of freight payment is satisfactory as far as it goes, it has one drawback inasmuch as there is no provision in it for weight shortage at delivery end. There are grave complaints that a lot of pilferage takes place *en route*. The liability for this is not clearly defined in the Railway Act.

As public carriers, the Railways should be responsible for short weights and they should make refund of coal shortages.

Question No. 18.—Grants of siding accommodation to collieries are reported to be unnecessarily and unreasonably delayed. Extension of the existing sidings and grant of new sidings upto or near the pit mouth should be in the hands of a statutory body composed of a committee from the Railways and the coal trade, which should deal with the matter in an expeditious manner. The terms of the siding agreement should also be revised.

Question No. 19.—At present wagons must be loaded to the actual carrying capacity. Previously one ton over-load or two tons under load were permitted. This margin should be reinstated. The following suggestions will help in removing complaints of overloading and underloading :—

(1) Installation of more weigh-bridges,

(2) Introduction of standard wagons for coal traffic, and

(3) More frequent checking of wagon tares.

Question No. 20.—Many collieries are fitted with mechanical loading devices of one type or another but their efficient and economical working depends upon an assured supply of open wagons. The supply of covered empties to mechanically loading collieries, which has been rather frequent in the recent past, results not only in unnecessary expenditure owing to double handling but also in the loss of output. The Committee would like to mention, in this connection, that pilferage of coal from open wagons throughout the Indian Railway system is so heavy that every means should be explored of realising the ideal of a covered wagon that can be loaded from a mechanical loading plant. According to the information of the Indian Colliery Owners' Association, such a model, designed by a member of the trade, is at present in the possession of the Chief Mining Engineer of the Railway Board.

Question No. 21.—For industries remote from any coalfield due consideration should be given to levelling up of the incidence of the cost of freight on the production of the finished material. The absence of any arrangement for such levelling up has been perhaps one of the chief factors in the reckless exploitation of some of India's coal mines, which has been going on during the past two or three decades. Such collieries suffering under a competitive disadvantage with the ones nearer ports or consuming markets have been compelled to adopt the cheapest means of production with the consequent adverse results to the estate of the collieries and danger to the reserves.

Question No. 22.—The Committee do not think that it would be desirable and possible to introduce seasonal rates for the transport of coals by rail because, except for major industries such as steel, cement, etc., it is not likely that consumers would be attracted by lower rates during particular seasons. Lack of stacking space both at the producing and consuming centres is also likely to act as a limiting factor.

Raising Costs.

Question Nos. 23, 24, and 25.—As these questions relate to the estimates of cost of coal and other specific problems of coal cutting, they would be more properly answered by the colliery owning interests. The Committee of the Federation do not have any comments to offer on these.

VI

RAILWAY COAL REQUIREMENTS

Questions Nos. 26, 27, 28, 29, and 30.—The Committee of the Federation have no comments to offer on these questions.

VII

STOWING

Question No. 31.—The Committee have no further comments to offer on this question than those already made in reply to question No. 2.

Question No. 32.—The question asks for information about the cost of siding. The Committee have no information at their disposal.

VIII

MISCELLANEOUS

Question No. 33.—During the war it has been possible to acquire land for mining purposes under the Defence of India Rules and the ease with which this has been effected has thrown into relief the inadequacy of the previous arrangements under the Land Acquisition Act. The normal procedure of acquiring land takes at least six months and in many instances land is required urgently by collieries for purposes such as dumping overburden spoil from open cast workings, depillaring operations, construction of huts for temporary labour, etc. It is, therefore, essential that modifications to the existing procedure should be introduced by which coal companies can be put in possession of the land they require within a reasonably short period (not exceeding two months) from the date of application.

It is understood that the Provincial Governments will no longer allow land to be acquired under the Defence of India Rules and early action is required to amend the existing legislation.

Question No. 34.—The question relates to briquetting of coal. The Committee of the Federation is not in a position to give any information on this aspect.

Question No. 35.—The Committee have no information regarding the washing of coal.

Question No. 36.—The need is to get Government to accelerate the construction of the Fuel Research Institute and equip it to deal with problems arising in the industry. The Committee understand that a comprehensive list of research subjects has already been submitted to the Secretary of the Indian Coalfields Committee by the Indian Mining Association. The Committee endorse the suggestion that the activities

and scope of any research organisation formed should be directed by a special board mainly representing the interests of the producers and consumers of coal rather than any particular Government department and that the support of the principal industrial enterprises should be enlisted through their existing associations.

Question No. 37.—This question can be properly dealt with by the producers of metallurgical coke.

Question No. 38.—Facilities for rescue arrangements at present would seem to be adequate but a Safety Research Department should be inaugurated.

Question No. 39.—The Committee are of opinion that steps should be taken by Government to introduce elementary education for the children of coalfields labour on a progressively increasing scale. The responsibility for this should not be placed on private enterprises but should be the elementary responsibility of Government.

Question No. 40.—The Indian miner has still his roots largely in agriculture and, as long as this situation persists, it is difficult to think of having a settled labour force for this industry. The Committee, however, believe that improvements may result in the migratory tendencies of the present colliery labour if they are provided with amenities of life and opportunities for enjoying a higher standard of living. There should be compulsory elementary education and general uplift in the outlook of the miner to enable him to appreciate all these benefits and to increase his spending power. The Coal Mines Welfare Fund is now in force and it is hoped that, with its help, some advance will be made in achieving these ends. Every effort should be made to make the worker mining-minded. He must feel that his future lies with the industry and his interest should no longer be divided between his agricultural fields at home and the work at the coalfields. This can only be achieved if the conditions of work are improved and the wages that he is paid are commensurate with the work he has to do under ground.

QUESTIONNAIRE II

CONSTITUTIONAL

Questions No. 1 and 2.—The Committee of the Federation are of opinion that it is necessary to enact legislation to vest in the Central Government the power to regulate mines and mineral development and to control the production and distribution of coal. The experience of the industry during the period of war was not very happy. It was subject to the control of two Departments of the Central Government, namely, the Supply and Labour, with the result that on certain matters decisions could not be taken expeditiously and the industry suffered a great deal. Besides, the coal industry is a very important basic national industry, as it is a source of power to the country and the basic raw material for metallurgical and chemical industries. No policy of rationalisation of its production and distribution can be put into effect unless it is brought under the central authority.

It is very essential, therefore, to have the control vested in one central authority rather than to have it divided between the Central and the Provincial Governments. The Central Government should, therefore, assume power over coal-mines and coal industry, so that the industry may develop uniformly under central control, instead of allowing it to be developed haphazardly under several Provincial-Administrations.

Coal Industry should be put under one portfolio, namely Mines and Minerals, which should deal with development, conservation, production, and distribution of coal. The Department should also deal with all other minerals, and, if possible one Executive Councillor should be in independent charge of the Department. If necessary, the Member and his Department should be helped by an Advisory Committee on which should be represented both the producers and consumers of coal.

STRUCTURAL ORGANISATION OF THE INDUSTRY

Questions Nos. 3 to 6.—These questions relate to the structural organisation of the industry and replies to these questions are expected to be based on actual experience of the working of the Managing Agency system in the coal industry. The Committee would, in the first instance, like to make a general observation that the existence of the managing Agency system in India is peculiar to its economy and has very often helped the financial structure of an industry in its initial stages. In the days when capital for industrial finance was so shy, it was the Managing Agency system which was responsible for the establishment and maintenance of many a nascent industry in the country. It cannot, therefore, be said that the Managing Agency system, even now, has outlived its usefulness and utility in the industrial finance structure of this country.

The Committee further beg to point out that particularly in coal industry, the Managing Agency system has been more helpful because of the fact that it is possible for a group of collieries under the control of one managing agency to have technical supervision at the highest level, a central purchase and sales organisation for the group and a well equipped central workshop, which it may not be possible for each of the collieries to maintain. It should be further remembered that when sandstowing is compulsorily introduced in all mines, the facility of interchange of equipment would not be possible in a group of collieries unless they are under the control of the same Managing Agents.

OWNERSHIP AND MANAGEMENT

Questions Nos. 7 to 10.—These are more or less technical questions which can be more usefully answered by the interests concerned. The Committee do not, therefore, desire to offer any comments regarding the specific questions raised therein. They, however, submit that in view of the fact that there are no standard leases in the coal industry and that leases have been granted from time to time by direct negotiations between the lessors and the lessees, it is neces-

sary that Government should insist upon adoption of standard leases in the leasing of mining areas.

It is not desirable that coal-bearing properties on behalf of the owners should be administered by the State. State Administration has always been proved to be costly, because of the overhead charges, as compared to the administration by private enterprise. It is, however, desirable that Government should enact legislation authorising State control over the power to lease coal-bearing lands, in view of the fact that most of the unworked coal-lands are either under litigation or they are held by parties who demand unreasonable *salami* and royalty.

FINANCE

Questions Nos. 11 and 12.—The industry is well-financed and would be able to obtain further finance on reasonable terms in case Government offer certain facilities for expeditious delivery of machinery at reasonable prices. The question of extending the period for giving special depreciation requires to be handled sympathetically. It must be remembered that coal mines are a wasting asset and, as such, the demand of industry for allowing depreciation, particularly when *salami* and royalty are interlinked, against such a wasting asset should be favourably considered.

PRODUCTION

Questions Nos. 13 to 16.—The question relating to the improvement of the output of the Indian coal-mining labour, as also the total production of the industry, is dependent upon a number of factors, such as, greater mechanisation of mining, with better equipment and with greater amenities of life, particularly, the supply of more food and clothing, and decent accommodation for housing; these are the factors which would encourage the mining labour not only to be steady and mine-minded, but better output per head is bound to result. If the necessary implements for cutting coal and other mechanised equipments are immediately made available to the industry, it would not be very difficult to raise the necessary amount of coal required for the internal consumption by the indigenous industries.

DISTRIBUTION AND MARKETING

Question No. 17.—The Committee of the Federation have ascertained the views of both the producers of coal, as also the consumers, and point out that there is divergence of opinion between the various interests. It is true that any scheme of marketing to ensure stable and fair prices and equitable distribution will only be successful if the producers, both small and big, wholeheartedly co-operate for its successful working. Besides, there are certain conditions which must necessarily precede the operation of a voluntary marketing scheme, such as proper grading of coal and fair prices for the various grades. It cannot be ignored that the

ruling factor in fixing the price of coal is the purchase price offered by the railways for their requirements. Fixation of prices, therefore, according to the various grades of coal would be an important function of the State, which the Committee feel, should be performed with the advice of both the producers and the consumers.

After the prices have been fixed on the basis of different grades of coal in different areas, the industry should be allowed liberty to arrange its own marketing without any further Government interference, subject to the proviso that the prices, as fixed by Government in consultation with the producers and consumers are maintained. In case of any shortage of coal, or in case of any difficulty arising in respect of transport, the distribution of areas for supply and of transport should be controlled by Government. In case of the surplus position of coal supply, quotas should be fixed by Government for coal raisings and the rest of the organisation should be left to the industry itself.

Question Nos. 18 to 21.—No comments.

TRANSPORT

Question No. 22.—Transport of coal under the present priority control system has been one of the major headaches not only of the Railway Administration and the producers, but also of the consumers. As a result of the present transport control, the railway authorities must have secured some very useful information about the economic range of supply of coal to consumers from any particular producing zone. This experience can be profitably used by so adjusting the freight rates as to encourage the use of coal from a particular area by consumers in a particular zone. It is not necessary to institute any specific zonal or transport control system, as it is better to keep an industry free from the evil effects of any such control systems, and the use of coal in any particular area should be allowed to be encouraged by the introduction of favourable freights to that area.

Question No. 23.—No comments.

Question Nos. 24 and 25.—It is necessary to have the freight rates arranged as to encourage a wider use of low-grade coal in distant parts of the country and thus to conserve the higher grades. It was suggested to the Committee that the principle of charging what the traffic can bear will be a sound one and would also help the State to conserve metallurgical and higher grade coal.

Question No. 26.—It is reasonable that some concession should be given by way of a reduction in freight rates for train loads of coal consigned to one consumer.

Question No. 27.—Restrictions on the movement of coal which have been in force with a view to economise railway transport are no longer necessary. Sometimes coal despatches are held up inordinately under the present movement restrictions, and it is hoped that all these restrictions would be removed at an early date.

Question No. 28.—No comments.

PRICE AND PROFITS

Question No. 29.—Please refer to the replies given against question No. 17.

Question No. 30.—No comments.

Question No. 31.—The present procedure adopted by Government for the fixation of prices for the various grades of coal seems to be satisfactory to the industry.

Question Nos. 32 to 34.—No comments.

TAXATION

Question No. 35.—There is a genuinely felt feeling in the country that every industry, including the coal industry, is heavily taxed either under the tax structure of the Central Government or under that of a Provincial one. It cannot be denied that coal is the principal article for producing power and, as such, the industry is one of the basic industries in the country. It is necessary, therefore to urge that the industry should not be overburdened with various kinds of cess and other Provincial taxes, and that it should be possible for the industry to make its produce available to other industries at the cheapest possible value.

NATIONAL AND INTERNATIONAL COMMERCIAL POLICIES

Question No. 36.—The Committee feel that in the interest of the industrialisation of India, export of coal should not be encouraged as a rule, as every ounce of coal available will be utilised within the country. Export can only be justifiable in case of India can secure in exchange rice from Burma and copra from Ceylon; but even then coal to these countries should be exported in limited quantities.

Question No. 37.—It is desirable for this country to follow the recommendations of the international conventions in respect of colliery labour, as acceptance of international obligations would tend to improve the standard of life of our colliery workers. It may not, however, be possible to implement these recommendations immediately they are adopted at the International Conferences, but taking due note of the circumstances of this industry, it may perhaps take some time for the full implementation of these conventions in India.

CONSERVATION OF HIGH GRADE METALLURGICAL COAL

Question Nos. 38 to 42.—As these are technical questions, the Committee have no comments to offer.

Question Nos. 43 to 75.—No comments.

ORAL EVIDENCE OF MR. SHANTI PRASAD JAIN
REPRESENTING THE FEDERATION OF INDIAN
CHAMBERS OF COMMERCE & INDUSTRY.

After meeting the growing internal demand for coal for increased industrialisation etc., it is doubtful whether there will be any surplus coal for export. In any case, coal should not be exported except to a limited extent to Ceylon, Malaya and Burma if foodstuffs could be had from those countries in return. This need not involve closing down of the Coal Grading Board as grading for other purposes is essential. But the special concessions attaching to export coal should be withdrawn.

It is not necessary or desirable to regulate compulsorily the use of coal by industries and discretion regarding the consumption of the different classes of coal should be left to the consumers. Moreover, the difference between consumption and production should be taken into account before the use of metallurgical coal is restricted to the steel industry only.

It is desirable to increase port facilities all over India in view of the greater industrialisation programme ; there is need for more extensive use of sea transport for moving goods from one part of the country to another.

The Federation is not in a position to give estimates of future coal requirements. Dispersal of industries is desirable, but the availability of raw materials and fuel which is important and the nearness of their supply should be taken into account. It is necessary also to expand transport facilities so as to cope with peak demands for coal to avoid purchases in advance for storage.

There has been a lot of pilferage of coal en route and the railways should re-weigh wagons at destinations if the consumers demand it and they, as public transporters, should make good the shortage if any without any increase in the freights. In fact there should not be two rates, railway risk and owners' risk, but only the former. To avoid pilferage, the Railways might consider building special covered wagons that can be loaded mechanically and from which the bottom can be removed to facilitate unloading also.

The "grouping" in Jharia whereby a uniform freight rate is charged in respect of groups of collieries in that area should be applied to Raniganj also.

Producers and consumers should contribute towards the cost of fuel research and the best method would be by imposing a Cess on despatches. The Fuel Research Institute should be controlled and guided by Government and industrial Experts.

The present position in regard to the management and ownership of the collieries is satisfactory. The Managing Agency system has the advantage of being able to recruit labour reasonably well, get technical advice and by grouping collieries afford better amenities. The Coal industry, given assistance to import equipment, is capable of increasing output to meet the total estimated present demand

of 32 million tons per year. Certain difficulties arise because interests holding large coal properties demand high rates of *salam* and royalty for sub-leasing.

Metallurgical coal should be conserved ; compulsory stowing should be undertaken in all mines where it is an economical proposition, irrespective of whether they produce metallurgical coal or other coal. The cost of such stowing should be borne by all those who are benefited.

The present control over coal is satisfactory except that many authorities have to be approached. The control should continue but it would be better if it is exercised through a Board consisting of representatives of Government, Provinces consumers and merchants. A central marketing agency will be too cumbersome. This Board should fix royalties and *salam*s in accordance with such regulations as Government may make with regard to grant of mining leases. Government should have the power to regulate leases, but normally Government should not interfere with present leases unless the country's interests are being prejudiced.

Zoning of coal supplies will not be possible as there will not be sufficient coal of specified quality in certain areas.

As regards prices there should be a Board consisting of representatives of the producers and consumers and prices should be fixed on the basis of the cost of production including depreciation and taxes charged plus normal profits (which should be more than in any other industry, considering that coal is a wasting asset and lot of difficulty is involved in the initial stage).

Control over distribution is desirable so long as shortages of coal last. Further, some control over production will also be necessary.

All authority in relation to coal should be centralised the guiding policy being laid down by the Board mentioned earlier and executed by an executive body (Coal Commissioner).

65. WRITTEN EVIDENCE SENT IN BY THE BENGAL
NATIONAL CHAMBER OF COMMERCE.

QUESTIONNAIRE I

Question No. 2.—Taken as a whole, India has undoubtedly large coal resources. But that does not by itself justify a policy of free export of coal. In the first place, so far as the Committee are aware, the annual production of coal is now in the neighbourhood of 25 million tons. In the second place, whatever might be the over-all position, there is admittedly a very great shortage of better quality steam or gas coal and, particularly metallurgical coal resources of India, and we cannot afford to export any quantity, however, small these varieties out of the country.

While it is essential that the entire annual production should be marketed, either inside the country or outside, the Committee are definitely of opinion that in the first place, the annual raising of metallurgical coal should be strictly limited to the actual requirements of the country, and that, in the second place, primary consideration should be given to the task of making available to all internal consumers as much quantity as possible. The question of permitting any exports even of inferior coal should be considered only after meeting the entire demand within the country. As has been stressed in the questionnaire itself, the vast plans for industrial development in the country, which are now under consideration of the Government and the industrialists, must make an increasing call on the coal resources of the country, and it is essential that no export of coal should be permitted at the expense of indigenous industries, whether existing at present or likely to be started hereafter.

The Committee are not indeed in a position to assess the total industrial requirements of coal within the country. This estimate can be made only when a complete picture of all the plans are made available. They would, therefore, suggest that the question of exports should be determined in consultation with the planning and the Industries and Supplies Departments of the Government of India.

The Committee admit that it may take some time for all the plans, either Governmental, or private, to mature. They would, however, draw attention to the fact that the Government of India are now taking steps for encouraging a vast building programme with the two-fold object of counter-acting the effects of unemployment consequent on retrenchment and demobilisation of services, connected with the conduct of war, and of providing amenities to the public in the form of larger number of residential and industrial buildings. Considerable number of bricks will be required for the purpose, and the important part that coal, particularly inferior coal, will have to play in this respect does not require much emphasis.

It is not, however, merely the industrial requirements of the country that have to be taken into account. The question of exports should also be considered with reference to the need for the supply of soft coke in sufficient quantities to meet the increasing domestic requirements of the vastly expanding urban population. Looking at the problem from a wider point of view, this is essential in order to prevent unnecessary waste of alternative fuels in the shape of timber and cowdung.

Subject to these observations, the Committee would naturally prefer the adoption of special measures for pushing Indian coal in markets which were temporarily cut off during the war. The Committee would also suggest, that, provided there is an exportable surplus, advantage should be taken of the bargaining power which India may thus have in securing trade concessions in countries like Burma, Ceylon and Malaya which have no coal resources of their own.

The Committee have not considered it necessary to reply to Questions 3, 4, 5, 6 and 7 as these are of primary importance to the Coal Industry, but also because of the less importance which they attach to the question of exports, in view of the observations made above.

Question No. 8.—The Committee agree that coal required for the internal market should be properly graded and that grading should be made compulsory. As a matter of fact, the distribution of coal during the latter years of the War has been made on the basis of the existing grades, though it is difficult to say whether and to what extent the classification of industries under a specific grade of coal was satisfactory. Before the War, however, there was free market, and any consumer could have any quality of coal, provided he was willing to pay the price, irrespective of the question whether the quality consumed by him was at all suitable or necessary for proper functioning. In view of the fact that the supply of superior quality of coal in the country is comparatively small, the Committee consider it imperative that its use should be strictly controlled and that specified industries should be allotted only specified qualities of coal graded on purely scientific lines. It may be necessary for this purpose to set up an expert machinery to examine the question carefully with particular reference to the needs of each industry.

It has also been suggested, in this connection, to the Chamber that coal containing a large percentage of ash can be made to suit the requirements of particular industries by modern heavy liquid separation or washing plants. In view of the comparative shortage of good quality coal, all possible efforts should be made for utilising the larger resources of inferior quality of coal and the Committee would suggest that the possibility of improving the quality of inferior coal by any scientific procedure should be fully investigated. The attention of the Chamber has, in this connection, been drawn to a recent complaint made by the Brickfield Owners in Bengal that the III-B grade coal containing 35% ash, that has recently been allotted to them, is unsuitable for the purpose of burning bricks. The Committee have no technical knowledge on this point, but they would suggest that, if it were possible to reduce the ash contents by a scientific process, complaints made by the Brickfield Owners and, possibly by other industries also, and their unwillingness to consume inferior grades would to a great extent be removed.

Question No. 13.—The existing facilities for handling coal traffic are admittedly inadequate. Leaving aside the emergency conditions during the War, industrialists often complained, particularly during the busy season, of short supply of coal wagons. The Committee also understand that the difficulties of the Railways are due not merely to the scarcity of wagons. Their power resources and track capacities are also much below the requirements of the Coal Trade. To meet this situation, industries were often urged by the Railway Authorities to stock as much coal as possible during the slack season in order that the

Railways might move agricultural produce in a satisfactory manner. But it has not generally been possible for the industrialists to act according to this advice. In the first place, It is in the so-called busy season that many of the industries are also themselves busy and they require coal at this particular time when the Railways are least able to carry coal. In the second place, many of the industries, particularly those which are comparatively small in size and resources, cannot afford to block their capital by purchasing coal much in advance of their requirements ; many of them, again, have not the necessary accommodation for the purpose.

Reference may, in this connection, be made to Question No. 22 regarding the introduction of seasonal rates for the transport of coal by rail. In view of the observations made above, the Committee are doubtful how far this will have the desired effect of encouraging consumers to obtain their coal during the slack season.

As is also well-known, it is during the busy season that the production of coal is the highest, and it has often happened that production of coal has been hampered on account of the inability of the Railways to transport the quantity already raised. The limited stacking capacity of many collieries does not make it possible for them to go on raising coal unless it is speedily moved away from the pitheads. Further, while the collieries themselves feel the need for improving their methods of production such as would avoid waste and economise cost, they cannot naturally be expected to incur the necessary high initial capital cost unless they are assisted by the Railways in disposing all the quantities they raise as early as possible. If, therefore, production has to be increased, transport has also to be improved correspondingly.

Transport bottleneck has also resulted very often in the paradox of a large demand for coal being unsatisfied, simultaneously with large surplus quantity of available coal at the collieries.

The Committee would, therefore, suggest that the Railways should provide themselves with facilities for transporting coal in as large quantities as possible during the busy season also. It is not, however, suggested that they should, for this reason, starve the requirements of other trades and industries, particularly the movement of agricultural produce. Adequate number of wagons for the coal traffic should, therefore, be provided and track capacities and power resources increased in order to enable the Railways to perform this service satisfactorily.

Attention may also be drawn, in this connection, to the fact that many industrial concerns who are now allotted wagons do not actually get the same in view of the strange practice of the Distributing Authorities or the Railways switching over the wagons, actually despatched from mid-way stations to certain other consumers. This practice has to be stopped.

It has also been suggested that the present system of routing should be revised so that coal may not travel unnecessarily larger distance in order to reach a particular destination. It has also

been reported that the number of empty wagons returning is often very heavy. If this is so, the question of bringing about a better co-ordination between the Trade and Railways so as to release more wagons for coal should be examined.

The Committee, however, feel that till such time as the Railways may not find it possible to provide increased facilities, the Government should consider the feasibility of affording some relief by alternative methods. On their part, they would suggest that thousands of military vehicles which will now be released may, for the time being, be utilised for transporting Coal from the collieries to the consuming centres. The question of the shortage of petrol can be overcome by fitting the Lorries with Producer Gas Plants.

The Committee would, in this connection, also refer to a scheme, which was successfully operated by the Bengal Glass Manufacturers Association, a body affiliated to this Chamber, in 1943. With the support of the Railway Board, the Association arranged the transport of coal to Calcutta by a rail-cum-river service. Coal was first moved by the E.I.Rly. to Burdwan whence it was carried by the Burdwan-Katwa Railway (managed by Messrs. McLeod & Co.) to Katwa. From there it was carried by boats to Calcutta and supplied to the members of the Association. Thus the turn-round of the wagons being quicker, one wagon was made to perform the duty of three or four wagons. The time taken was undoubtedly longer for direct transport from the collieries to Calcutta, but at a time when there was an acute shortage of coal, the service rendered by the Association to its members was considered very valuable, while the cost also was not heavy.

There may perhaps be other methods by which the transport of coal may be made easier, and the Committee hope that this question will be carefully gone into.

Question No. 15.—So long as there is short supply of coal and the Railways are not in a position to improve their capacity to handle traffic, some method of allotment of wagons for coal should be retained in order that industries, considered more essential, may not starve of their requirements of coal.

The Committee would, in this connection, also refer to a complaint often made by those Indian collieries which produce inferior grades of coal that, according to the present methods of distribution, these collieries are often denied adequate wagons larger number of wagons being allotted to those collieries producing higher grades of coal. This defect has to be remedied.

Question No. 16.—In order that there may not be any congestion in Central Weighbridge resulting in unnecessary detention of wagons, the Government should encourage collieries to have their own weighbridges by continuing the old rebate system. Incidentally, this would also be an inducement to the Engineering Industry in India which would thus be enabled to build weighbridges within the country and supply the same to the collieries. Further, it would also remove complaints regarding over-loading and under-loading of whole wagons ferried to in question No. 19.

Questions Nos. 39 & 40.—The Chamber, as representing both producers and consumers of coal, is interested in a settled and contended labour force for the Coal Industry. Unfortunately coal labour being primarily agriculturists and migratory in character and also having comparatively low standards of living, is not responsive to higher money wages. It has so far been the experience of colliery owners that increased money wages do not necessarily result in increased production. On the other hand, it has sometimes the effect of curtailing production, as the workers, assured of a minimum income, work lesser number of days.

The Committee are, therefore, of opinion that, in order to encourage greater production in the collieries, provision should be made, firstly, for better education of the children of the labour staff, both primary and high. This is necessary not merely to raise the standard of education in the country but to improve the efficiency of the workers as well. Primary education for children should be made free and compulsory, while arrangement should also be made for adult education in the form of radio talks, news and musical programmes. Secondly, larger number and greater variety of consumer goods should be made available in the collieries to be sold to the workers at concession rates. The present habit of dissipating the major portion of their income in drinks should be discouraged. Thirdly, unskilled labour should be recruited from outside the present mining area. These new recruits, having no other subsidiary occupation, will be more attached to their work in the collieries than the existing migratory labour.

QUESTIONNAIRE NO. II

Question No. 1.—The Committee of the Chamber are strongly of opinion that power to regulate mines and mineral development should be vested in the Central Government. The Coal resources of the country not being confined within any particular provincial area, there is a likelihood, in the event of decentralisation of control, of several provinces pursuing different policies in the matter. In the interest of harmonious development of the Industry, it is, therefore, essential that control should be centralised. Reference may, in this connection, be made to the Statements which the Government of India had issued in April last year explaining their industrial policy. In that Statement the Government of India expressed their opinion that coal and 19 other industries should be centralised, and the Committee of the Chamber at the time fully endorsed this suggestion of the Government of India.

Question No. 2.—Hitherto the administration of all questions relating to Coal industry and trade

has been exercised by the Central Government through more than one Department, leaving aside the control exercised by the War Transport Department during the War and the Communications Department before the War over the transport of Coal. This has caused considerable difficulty to the trade and has resulted in diversification of policy of the Government of India. The Committee, therefore, feel that the vesting of the control of all matters relating to coal in one single Department is essential for the development of the industry and for enabling it to help in the general industrial development of the country.

Questions Nos. 3 to 6.—The Committee are aware that the managing agency system is liable to abuse and that actually there may have been cases where the Managing Agents have not served the interests of collieries under their control in a very proper manner. At the same time, the Committee would point out that there is no special problem of Managing Agency of Colliery Companies only and that the possibility of abuses has to a great extent been limited by the amendment of the Indian Companies Act, 1936. As a matter of fact, this Act, is also a recognition of the great advantages which industrial companies have in being managed by Managing Agency Firms having considerable industrial experience and financial resources.

The question whether the Railways and the big industrial consumers should be permitted to own and manage collieries has to be examined from two important points. Firstly, the need for ensuring a steady supply of coal at economic rates for the purposes of carrying on transport business and other manufacturing processes which cannot afford to be stopped even for a day. Secondly, the large financial resources which the Railways, being State concerns, and Iron and Steel Companies, etc. possess may in many cases result in lowering prices of the coal below the economic level, thereby vitally affecting the comparatively smaller privately-owned concerns. The Committee are, therefore, of opinion that the Railways and the Iron and Steel Companies should be permitted to continue to own and manage collieries, subject to the conditions that (a) the Railways should, as a matter of policy, stop working their collieries when the cost of raising is high and (b) neither the Railways nor the Iron and Steel Companies should be permitted to sell their coal in open competition to privately owned concerns.

The Committee recognise that small privately owned collieries have not the same advantages which are possessed by the bigger concerns, but they have been informed that, if adequate facilities for transport are provided and if further they have not to face unequal competition from the Railways and the Iron and Steel Companies.

Besides, the Chamber has also been informed that the Industry is not at present suffering any financial handicap and provided there is no difficulty in securing machinery at reasonable prices and without much delay, it will be in a position to secure necessary finance on reasonable terms. (This also disposes of Questions Nos. 11 and 12).

Questions Nos. 7 to 10.—The Committee are aware that the existing system of private ownership of mineral rights in the permanently settled areas and un-controlled grant of leases for working these properties has not been beneficial to the industries and they recognise that steps should be taken to remedy these defects. The question as to whether these rights should be acquired by the State involves big issues and is, in the opinion of the Committee, intimately connected with the general policy of the Government regarding the land tenure system of the country.

Even if, however, it is ultimately decided by the Government to acquire the mineral rights in permanently settled areas, the Committee would strongly oppose the suggestions that the ownership of the collieries and their management should also be taken over by the State. In the Government of India's Statement on Industrial Policy, referred to in reply to Question No. 1, they had made it clear that, apart from Ordnance Factories public utility concerns and Railways, basic industries of national importance may be nationalised *provided adequate private capital is not forthcoming and it is regarded as essential, in the national interest to promote such industries.* The Government of India, of course, stated that the case of Coal will be examined and dealt with separately. The Committee of the Chamber are of opinion that there is no reason to treat coal on a principle separate from other basic industries such as Air Crafts, Automobiles and Tractors, Iron and Steel Companies, etc. which was mentioned by the Government of India in this connection. The two tests applied by the Government of India for nationalisation do not apply to the case of Coal as it has never been complained that adequate private capital has not been invested in the Coal industry and further the question as to whether it is essential in the national interest to promote the coal industry does not arise as the industry is already well developed.

Question. No. 17.—The Committee do not favour the proposal to form a Central Marketing Agency either on a voluntary basis or under compulsion. They consider that a system of price fixation allied to Government control and distribution would be adequate for the purpose. Control over prices is essential both in the interest of the producers and consumers. So far as producers are concerned, they must be assured of a remunerative price or different prices for different grades at levels which would at once be remunerative to the producers and economical to the consumers.

In this connection, the Committee would also refer to the observations made by them in reply to question No. 8 of Questionnaire No. I issued by the Indian Coalfields Committee. It is essential that different grades of coal, even for internal consumption, should be fixed by an expert body and particular industries should be statutorily allotted particular grades of coal, no industry being permitted to use grades not allotted to it.

Questions Nos. 22 and 23.—The Committee are opposed to the suggestion for a Zonal system of distribution. In the first place, it would be unworkable if the suggestion made by the Commit-

tee for linking different industries to different grades of coal is accepted. In the second place, the biggest coal resources of the country being situated in Bengal and Bihar, a system which would prohibit the transport of coal from these areas to such consuming centres as Bombay or Ahmedabad would result in surplus output at the mines and unsatisfied demand at the factory site to meet which it might be necessary to import coal from other countries. The question of higher freight rates being paid by industries situated at a distance can be solved by providing special rates for long distance traffic.

Question No. 25.—The Committee are definitely of opinion that the fixation of the freight rates for coal should be determined by the principle of "what the traffic can bear". The Committee endorse the suggestion that, in the interest of industrial development, concessions should be given in the form of a reduction in freight rates to train loads of coal consigned to one particular consumer or group of consumers.

Question No. 27.—It has been reported that sometimes coal despatches have been held up inordinately owing to the restrictions on movement to junction stations. It is necessary that these restrictions should be withdrawn as early as possible.

Question No. 28.—The Committee agree that a common pool of wagons in the E.I. and B.N. Railways operated by a Central body will facilitate a more efficient distribution of the available wagons.

Question No. 29.—This question has already been disposed of in reply to Question No. 17.

Question No. 30.—The Committee do not agree with the suggestion that control over prices of coal supplied to industries, other than Railways and Iron and Steel Industries, should not continue.

Question No. 31.—The machinery for control should be a permanent Committee appointed by the Government on which both producers and consumers should be adequately represented.

Question No. 36.—The chamber is opposed to the export of coal except under conditions specified in reply to Question No. 2 of Questionnaire No. I.

ORAL EVIDENCE OF M/S. K. BASU AND D. N. SEN
REPRESENTING THE BENGAL NATIONAL
CHAMBER OF COMMERCE, CALCUTTA.

Coal should not be exported so long as there is a shortage in the country, except for bunkering, and to a limited extent to Burma, Singapore, etc. if rice could be had in exchange. It is true that a free export policy may attract tramp tonnage, but this should not be allowed to influence the decision if the needs of the industries in the country are being adversely affected. Metallurgical coal should not be exported at all.

With reference to the suggestion that low grade coal should be washed first, it is true that the price of coal may increase, but it may still be a desirable proposition for various reasons, *e.g.*, there is no point in carrying ash and paying freight thereon without decreasing consumption. To enable collieries producing lower grades of coal to wash, central washing plants may be set up.

If the railways are not able to cope with the coal traffic, the alternative method of transport, *e.g.*, river transport etc. should not be objected to even at increased cost as there would at least be a greater available supply. The Chamber did successfully transport some coal to Calcutta by waterways during the war. If as a result of augmenting railway rolling stock to meet peak demands, increased freight rates become necessary they should be accepted ; though the railways who would benefit most and who as public carriers are required to afford all facilities that the traffic demands should bear the major portion of cost.

Amenities to labour should be increased and better facilities for mining education should be provided. General education to the miners' children, rather than attracting them away from the mines, may help the coal industry, provided, of course, suitable working and living conditions are also provided.

The conditions prevailing in the coal industry demand a unified administration at the top in one centralised authority to regulate and develop the coalfields, fix prices, control production and distribution ; constitutional changes should not be allowed to affect this, as coal is a commodity of national importance. If in the interests of the country, it becomes necessary to conserve metallurgical coal, it may be preferable to acquire the properties producing such coal rather than to pay recurring compensation for restricting output etc. The management of such collieries should, however, be left to the trade.

The Managing Agency system has its defects in that it leads to the concentration of power but the advantages are greater in matters like financial assistance and technical supervision. The fact that Managing Agent may have other interests than coal helps the collieries rather than prejudices their interests.

Organisations like railways, steel and cement companies who need coal should own their collieries to meet their constant demand even if their raising costs are high but the purchase and sale of coal by them should be controlled so that they do not disturb the market ; it would be better if they do not trade in coal. Such consumers should not be allowed to acquire coal properties as a standby only and not for actual exploitation.

Nationalisation of the coal industry is not necessary as the coal industry is fairly well developed and such further development as is necessary can be undertaken under proper regulations, as

there is no dearth of capital. However, where defects and deficiencies cannot be remedied by control or legislation, the State may intervene to acquire mines.

As regards State regulation of the industry, prices must obviously be controlled. Price control may necessitate control over production, including the grading of output.

A zonal system of distribution with the object of utilising transport in the most economical manner and encouraging the use of inferior coal when it can be used should certainly be tried out. Even under this system, the industry anywhere in India can get the particular kind of coal it requires.

The main defect of the uncontrolled grant of leases for working mines is that there is no one rate of royalty and *salami*. It is not clear how this can be remedied unless the land tenure system is changed or the mineral rights are acquired.

Fragmentation is an evil and is of sufficient magnitude to deserve special notice.

66. WRITTEN EVIDENCE SENT IN BY THE SOUTHERN INDIA CHAMBER OF COMMERCE, MADRAS.

QUESTIONNAIRE No. I.

II. GRADING & EXPORTS

2. Circumstances 20 years ago were entirely different. Labour was cheap and available in plenty. Output was more than the requirements of coal in India. But now the case is entirely different and the circumstances are quite the reverse. Special measures for pushing Indian Coal in markets which were temporarily cut off during the war may be taken after the position in India has improved.

3. Grading has a good influence in re-instating Indian Coal in foreign markets and in Indian Ports. Exports increased.

4. During the past five years preceding the war, South African and Australian coals were competing with Indian Coals at Bombay and Karachi, rail and sea freights from Bihar coal-fields to these two ports being comparatively higher.

5. No. Concessions should be increased especially in case of export of Indian Coal to Indian ports so that no foreign coal can compete with the Indian Coal at Indian Ports.

6. Rate of Railway freight charges per ton loose into Wagon-loads at O.R. from Bengal and

Bihar Coal fields to the following destination are as under :—

	Madras			Karachi			Bombay		
	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.
Railway Freight .	11	7	0	14	0	0	12	6	0
Surcharge on the above @20% .	2	5	0	2	13	0	2	7	0
Excise and sand stowing duty .	0	6	2½	0	6	2½	0	6	2½
Extra duty collected at the destination by the Railway	1	4	0	1	4	0	1	4	0
	15	6	2½	18	7	2½	16	7	2½

It costs on an average Rs. 3/12/0 per ton for coal being brought down from collieries to K.P. Docks and also for loading the same F.O.B. Calcutta and it costs Rs. 2/8 per ton for dumping including landing port dues, boat hire, and/or wagon hire and wharfage ; hence

Rs.
3-12-0
2-8-0
—
6-4-0

So the steamer freights for the following three ports should be as under to make the shipments economical to those ports in comparison with rail freight rates:

Maximum Rs. 8/- for Madras.
„ Rs. 9/- for Bombay.
„ Rs. 11/- for Karachi.

7. Yes. It is necessary to regrade coal seams and it should not be confined to seams only as a whole by the grades of sections of seams should be continued as under the Coal Grading Board Act.

8. The grading of coal for the internal market is desirable. It should be discretionary.

9. It depends upon the rate of exchange prevalent at the time.

III. PORT FACILITIES

11. The unloading facilities for coal at other Indian Ports are not adequate. At Madras, there are only three keys for unloading the coal :

- (1) North Key.
- (2) East Key &
- (3) Outer Key.

Out of the above three keys, the north key is now specially reserved for Military purposes and hence for unloading coal only 2 keys are available and only one steamer can be accommodated at each of these keys and if there are more than two steamers, they have to wait or to unload the coal at the moorings.

At Cuddalore, Negapatam, and Tuticorin, steamers have to remain at the mooring and the coal has to be brought down into barges. I believe the

Government is considering the development of these ports.

12. On the East Coast except at Cuddalore there is no mechanical facilities available for bunkering coal. They are inadequate, though at Madras and Vizagapatam, I believe the bunkering can be done at keys by hand labour.

13. I believe there are not enough facilities, especially wagons to cope with the movement of coal required by the Railway in India and hence I suggest that wherever it is possible, the Indian Railways should get their coals by sea at the ports served by them.

15. The method of allotting wagons in force in 1940 was satisfactory.

21. Group System of Railway Freight in the Raniganj field is desirable.

QUESTIONNAIRE No. II.

3. The system of Managing Agents is satisfactory but the owners of the collieries such as railways, iron & steel and cement company's should stop extra raising of coal for the purpose of trade.

4. No changes are necessary.

5. Yes.

7. The present system of mineral rights to private ownership is satisfactory. We do not agree to any acquisition of mineral rights by Government.

8. It is not adequate solution.

9. Not necessary.

10. Private ownership is necessary to continue for working and disposal of coal. Interference by State in productions, distributions, and marketing is not necessary.

11. Yes. It is a fact that a few concerns are under-capitalist. Such under-capitalist collieries should be provided with proper finance on reasonable terms for modernising their equipment and technique.

12. Government should take proper steps to rectify the position, wherever the over-capitalist concerns may effect adversely to the coal trades.

14. These points may improve the output of Indian coal mining labour.

- (a) Introducing of three shifts per day.
- (b) Prohibition of intoxications.
- (c) Providing necessary amenities of life to the labours.
- (d) Payment of proper wages.

15. Yes. Provided the proper wages are paid by the contractors. Yes, it is considered that coal raising contract system has resulted in unsystematic mining methods.

16. (a) Diversion of coal-area labours should be stopped. Labours from the other area should be recruited. Exportation of labours, if any, should

be stopped. Proper training should be provided to the labours.

(b) Virgin lands, wherever available, must be developed.

(c) Collieries should be modernised with latest equipments.

(d) Exports of coal should be minimised.

17. The central marketing agency for coal is not at all desirable, either voluntarily by trade or under Government aegis. The price fixation by the Government and distribution by the Government is inadequate. It is preferable that price control related to sales quotas for different mines be fixed privately by the trade in agreement. The Regional or zonal groupings under the marketing scheme is not at all desirable. The consumers were purchasing their coal requirements according to their choice at moderate prices in pre-war days. All consumers were obtaining their requirements, either by sea or rail, without any difficulties as transport facilities were freely available.

We will prefer a scheme where consumers of coal may purchase their requirements from the collieries. Managing agents or proprietors of collieries should raise output of coal and sell to the public in open market. Collieries as well as coal consumers may engage middlemen or broker wherever they require their services. State should not meddle in the distribution and marketing. The regulations for the use of different coals for different purposes are not preferable. Consumers should have the liberty to purchase coal of required grade, as it was in normal days. As such, the question of fresh grading does not arise.

19. Regulations of the use of coals for certain consumers such as Railways, are also not preferable.

20. As stated above, this question does not arise.

21. Steam above 3" (2) Rubble above 1". (3) Slack below 1".

22. Zonal transport distribution is not preferable.

24. Yes. It is unsound. It should be arranged according to the quality and place of long distance.

26. Yes. Reduced freight rate should be charged by the Railways for train loads of coal consigned to the one consumer or one middleman of number of consumers of the same place.

27. Yes. There should not be route restrictions on the movement of coal.

28. Yes. Common pool of wagons for E.I.Ry. and B.N.Ry. can facilitate efficiently.

29. Yes, Free competitions as to the price of coal is desirable. By this the consumers may get the advantage of low price, instead of paying high fixed price even in normal times. Power to fix the prices by the Government is not necessary.

30. Control over the prices of coal supplies Indian Government Railways and Indian Steel Companies etc. would provide a sufficient impetus for achieving stable conditions in industries.

31. Government intervention is not preferable.

32. One rupee per ton, difference in each grade, should be upto III-A Grade. Coal of III-B Grade is something like stones and therefore should be consumed near about the coal fields at a very low price.

34. Middleman's commission was never excessive in consideration of their services rendered to the consumers. Free competitions in the trade will bring the price at such a low level which cannot include excessive commission. There will be considerably a very little commission. On the contrary cost of any Government organisation to handle distribution of coal will be much more higher than this little commission of middleman. It will be extra taxation in general to all coal consumers. Consequently the prices of coal will be very high. The coal consumers at a place of long distance shall need a middleman and will engage a middleman as they will be more satisfied individually by their special middleman than a general organisation.

45. It is, no doubt, heavily taxed and required relief in best possible ways.

62. It may be more economical to burn low grade coal near about the coal fields. Such coal may not be worth even for the railway freight amount for a place of long distance. It will also avoid considerable movement of coal that would otherwise be necessary.

ORAL EVIDENCE OF MESSRS RAGHAVAN NAIR, B. O. KHANDARIA AND BHAGAVANLAL P. WORA REPRESENTING THE SOUTHERN INDIA CHAMBER OF COMMERCE, MADRAS.

The Chamber has a membership of 700 and about 45 district chambers are affiliated to it.

Coal should not be exported until all internal requirements are met. As an exception, however, and because India is under an obligation to countries like Burma and Ceylon and depends on them for rice, copra, oil etc., their requirements of coal should be met, if possible. The transport of coal by sea is expensive the difference between the freights by the two routes is about Rs. 15 and there is besides a considerable wastage of coal owing to more frequent handling.

Some of the mills in Madras have changed to electricity and others may do likewise with the result that coal consumption will go down. With the increased availability of hydro-electricity, industries are using more electricity as it is cheaper. Due to the shortage of coal, some industries are working on oil as it is found to be cheaper and more easily obtainable even though it is imported. The conversion from coal burning to oil burning

The nationalisation of acquisition of miner rights by the State is not favoured. To ensure the proper working of the mines, Government should frame rules and regulations for proper exploitation but beyond that there should be no interference. In accordance with this policy, the coal resources recently discovered in Madras should be leased out to private parties.

Intervention by the State in the matter of distribution, marketing and prices is also not favoured. The conditions brought about by the war will soon disappear and the coal industry can then once again look after itself. Further, in view of the increasing demand for coal, the industry is not likely to suffer as it did in the past. There should, however, be some control on the price at which coal to Railways and Steel Cos. is sold, as such big consumers may depress the market especially when they have their own collieries.

67. WRITTEN EVIDENCE SENT IN BY THE INDIAN CHAMBER OF COMMERCE, CALCUTTA

QUESTIONNAIRE I

1. *General.*—The Committee believe that the working of the Coal Mine Stowing Board would have proved more useful had the Industry received adequate assistance for the purpose of conservation of coal as well. It seems that the Board was concentrating more on safety measures by delivering the stowing materials at the pitmouth. This assistance could be availed of by a few bigger collieries, as the small collieries could not afford the expense of installing the machinery required for stowing. The Committee feel that stowing can be more successful if Government supply sand at fixed prices to the collieries irrespective of their location. Further, it would be helpful if the State were to bear the major share of expenditure in regard to stowing, which can later on be reimbursed from the stowing cess. Government should, with a view to reducing the cost of transport, undertake an investigation to find out whether any stowing material other than sand, which is available locally, can be suitably used for the purpose of stowing.

2. *Grading and export.*—The Committee are in favour of grading but consider that the grading system should be so devised as to conserve metallurgical coking coal. It is well-known that India has scanty reserves of this quality of coal and the need for a more cautious policy for its conservation cannot be over-emphasised. Further, grading should be done on sectional basis, and not on complete seams. From a long term point of view, it would be desirable to encourage the export of non-metallurgical coal, particularly to the neighbouring countries of *Burma, Ceylon and Malaya*. Export of coal, which is a bulk cargo, will enable ports like Calcutta to get more tramp tonnage and thus stimulate the general trade between India and these countries.

Export of coal can also be encouraged, if Government put up central washing plants at

convenient centres where coal from the neighbouring collieries can be washed at fixed rates. Government should also give adequate grants to enable research work being done for the purpose of finding out a more economical method of washing coal.

The Committee are of opinion that India should not import coal from countries, which subsidise their exports of coal and the necessary legislation should be passed to that effect.

3. *Port facilities.*—The Committee understands that the existing loading facilities at the port are not adequate, particularly with regard to loading-berths and stacking ground. It is learnt that in Calcutta, loading-berths have been reduced from 10 before the war to 5. It is further learnt that there is also dearth of adequate mechanical equipment for the loading of coal at the ports. It is, therefore, suggested that an adequate number of mechanical loading plants should be made available so that coal can be expeditiously loaded from the wagons into the steamers direct and thus save the bunkering charges. There is also need for providing additional bunkering facilities. In Bombay and Madras ports, mechanical equipment should be made available for the quick unloading of coal from the steamers into the wagons.

4. *Railway facilities.*—During the months of December to May, there is always a shortage of wagons for the transport of coal on account of the fact that it happens to be the busy season both for the coal traffic and the transport of a number of agricultural commodities. Moreover, a number of seasonal industries like cotton ginning, sugar mills, rice mills, tea gardens and brick burning, etc., have a peak demand for coal during this part of the year. Such industries cannot defer their demand of coal to a later period and, therefore, the quantities of coal remaining undelivered to them as a result of wagon shortage are lost to the coal trade. Thus wagon shortage adversely affects the coal industry. It is, therefore, essential that the Railways should have an adequate reserve of rolling stock of wagons with them to be able to meet the peak traffic during the months of December to May each year.

Even ordinarily, the system for allotment of wagons does not work satisfactorily. Often times large stocks of surplus coal lie with the collieries which the Railways are unable to move. These surplus stocks when they are not moved for long time deteriorate in quality and thus cause serious losses to the collieries. At times, losses are also incurred by the collieries by the spontaneous combustion of surplus stocks lying in their yards. The Committee, therefore, suggest that an enquiry at a high level be made into the working of the existing system of wagon allotment, and to see whether lack of rolling stock is responsible for the delay in the movement of coal or whether there is any defect in the operational systems of the Railways.

The Committee do not see any reason why Railways should still continue to follow the system under which the traffic originating on a particular railway is carried to its farthest point before it is handed over to a foreign railway. The Committee would suggest a revision of this system of routing, particularly in view of the

fact that all the major railways are now state-owned. Further, the Committee would suggest that the telescopic rates of coal should not be calculated separately for the distance traversed over each railway as is done now; but these rates should be calculated on the total distance covered irrespective of the railways over which the goods move.

The Committee would suggest the introduction of special low freights for coal. Before the war, it appears the total cost of transport of coal by sea from the coal pit to the port of Bombay was Rs. 10 per ton which included the railway freight from the colliery to the port as well as the steamer freight while the railway freights by the land route from the coalfields used to be Rs. 13/- per ton, which was thus Rs. 3/- higher. It is, therefore, suggested that not only the rates should be reduced but special rates of freight should be introduced for coal to the port so that it can easily be exported. The Committee consider that the concession on railway freight granted to coal before the war was not enough and they feel that a further concession is necessary.

Special seasonal rates for coal might prove to be helpful and encourage consumers both large and small to keep larger stocks of coal.

In view of the acute shortage of coal that is being experienced in the country at present and which is expected to continue for some time, it is essential that every encouragement should be given to all the collieries to raise more coal and for that purpose adequate facilities should be made available to the collieries.

The Committee understand that a large number of collieries do not have at present adequate siding facilities and it seems to be necessary that Railways should earmark every year sufficient sums for the construction of colliery sidings on the recommendation of proper authorities. For the guidance of these recommending authorities, the Railway Board might provide that any colliery raising coal beyond a certain minimum quantity, to be fixed at a figure not unreasonably high, would qualify for getting siding facilities upto the pitmouth. Collieries raising less than the minimum quantity would get siding facility upto a point which is as near to the pitmouth as is possible. In any case, siding facilities should readily be available to all the collieries and construction of siding should be undertaken without any delay after an application for the same has been submitted. The Committee understand that under the existing system delay takes place in the grant of siding accommodation to collieries and in a number of cases such siding accommodation is not even granted. Together with the extension of siding facilities and construction of new ones more engine power should also be made available. It is agreed on all hands that the introduction of more efficient means of production through mechanization of the mines is necessary to increase the production of coal, but it would be futile for the collieries to invest large sum of money on costly machinery and plant for the purpose of increasing produc-

tion until they are assured of a steady supply of wagons. Even now many collieries are equipped with modern machinery and their economical working will largely depend on the sufficiency of wagon supply.

So long as there is a shortage of wagons, the allotment should be made in such a manner that the number of wagons short supplied to collieries on any one date are made up on the next day. Steps should also be taken to put a stop to the heavy pilferage of coal in transit from open wagons and the possibilities of providing covered wagons that can be loaded by mechanical loading plant should be fully investigated.

5. *Raising costs.*—The Committee understand that few coal cutters have been installed during the last ten years. Wherever they have been used they have proved to be more or less successful, but there is often a shortage of proper trained personnel and spare parts. It is therefore desirable that the Government should open training centres at convenient places where the mistries for coal cutting, foremen, etc., can be trained. With the availability of spare parts and trained technical personnel, the tendency for increased mechanisation, which is already discernible, will gather momentum.

6. *Railway coal requirements.*—The railways are the largest consumers of coal in the country but as they generally purchase the best quality coal, the advantage goes only to a few selected collieries. Moreover, as already stated before, the reserves of metallurgical coking coal in India are limited, and it is necessary that this quality of coal should be conserved in the interest of the country. It is also necessary that the Railways should explore the possibility of evolving new types of boilers in their engines which can consume even the inferior quality of coal. This will mean a great saving in the consumption of metallurgical coal and at the same time the purchases of the Railways would be evenly distributed amongst all types of collieries.

7. *Miscellaneous.*—The course of events during the war has clearly shown the migratory nature of the colliery labour is a great unstabilising factor in the coal industry. It is possible to check this migratory tendency to a large extent by providing him with better amenities like good housing conditions, adequate medical aid, sufficient consumer goods and a minimum standard of education. With higher expenditure by the State on social welfare of the colliery labour and the sums available from the Coal Mines Welfare Fund, it is hoped that it will be possible to raise the standard of living of the workers in the coalfields. The State should not only introduce compulsory primary education in the coal mining areas but should also offer better facilities for the technical training of the workers and thus help in raising their efficiency.

The Committee trust that the views expressed above will receive Government's careful consideration.

QUESTIONNAIRE II

I

CONSTITUTIONAL

Question No. 1.—The Committee consider that the coal industry being a key industry should be included in the list of the subjects under the jurisdiction of the Central Government who should enact legislation to that effect at an early date. The experience during the war and the requirements of reconstruction and development of India as a whole necessitate a central policy with regard to the future development of the coal industry. Added to this, the Central Government own large mines and are one of the biggest coal producers in the country. They are also the biggest coal consumers, as the owners of railways. Furthermore, the Central Government as the owner of State Railways will be in a better position to deal with the difficulties connected with the transport of coal which constitute a serious problem at present. The Government of India's statement regarding their future industrial policy also mentions that most of the industries, such as Sugar, Cotton, Textile, Cement, Paper, etc., would be centralised. It is, therefore, felt that division of responsibility in regard to the Coal Mining Industry between the Provinces and Central will not be in the national interest.

Question No. 2.—The Committee agree that there should be one Central Government Department dealing with all questions pertaining to the coal industry. They also agree that a department should be created under a Member of His Excellency the Viceroy's Executive Council to deal with all questions relating to minerals and mines, including coal.

Further, the Committee suggest that an Advisory Board with representatives of all the interests viz., the Government, the Industry, the Trade, and consumers, should be formed to advise the Government on all points connected with the coal industry.

II

ECONOMICS OF THE COAL INDUSTRY

Structural Organisation of the Industry

Question No. 3.—The Committee do not consider the structure of the units of production in the coal industry to be unsatisfactory except for the fact that certain class of producers have followed policies which have not been in the best interest of the industry. For instance, the collieries owned and operated by railways, enjoying certain exclusive privileges regarding siding and yard facilities as also wagon allotments, have resorted to unhealthy competition and price cutting and generally succeeded in bringing down the prices to uneconomic levels. This development has had unwholesome effects on the industry as a whole. In the first place, adequate wages cannot be provided for the miners, without which the supply of settled and contented labour force, an essential condition for a stabilised industry

cannot be ensured. Secondly, it also involves waste of national resources, for, in order to reduce costs in conformity with the prevailing prices, the mining operations have to be confined only to good quality coal and to that portion of the mines which can be operated with minimum costs.

Question No. 4.—The Committee are of the opinion that the system of Managing Agents has not outlived its usefulness and should be continued. In the absence of a fully developed banking system in India, the system of Managing Agents renders invaluable help to the collieries in securing the necessary financial assistance in an easy and expeditious manner. Managing Agents, with their larger organisation, bigger resources and the higher technical advice which is available to them, are in a position to manage the collieries better than individual concerns. Further, Managing Agents with their varied experience of the working of different individual industries would be able to play an important part in the future development of the Coal industry.

Question No. 5.—The Committee do not consider close alliance between units of coal production and the consuming interests to be healthy factors from the point of view of prices and wages for the reasons stated in answer to Question No. 3.

Question No. 6.—This is covered by the reply to Question No. 3.

OWNERSHIP AND MANAGEMENT

Question No. 7.—The Committee do not consider it advisable to disturb the existing mineral rights as they apprehend that acquisition of private rights will create enormous difficulties and dislocate the present structure of industry. Further, the Committee do not consider it necessary for the Government to interfere with the so-called unilateral, but which are really bi-lateral, provisions in existing leases. Without disturbing the existing leases and without interfering with the rights of private transactions, legislature may enact such laws as may be deemed necessary to check dissipation of coal resources.

Question No. 8.—The Committee are not in favour of the Government undertaking administration of coal bearing properties on behalf of the owners. The experience of State management of commercial ventures so far has not been happy and, therefore, the desired result is not likely to be achieved by the State taking over the administration of the coal bearing properties.

Question No. 9.—The Committee are opposed to the Government enacting legislation authorising State control over the power to lease coal-bearing fields. The Committee apprehend that such control besides involving delay would lead to corruption and, therefore, suggest that private transactions in respect of leases should continue. They have however, no objection to the State enacting such legislation which might be considered necessary for the purpose of conserving the coal resources of the country.

Question No. 10.—The Committee are opposed to the State taking over the ownership of the

Coal Industry in this country. They would reiterate that hitherto the experience of State management and State ownership of commercial ventures has been far from encouraging and it is very doubtful that State ownership would help the development of the coal industry. In this connection, it might be interesting to note that coal production in the U.K. started decreasing steadily ever since Government took the control of the mines and this downward trend is continuing instead of being arrested after the extension of Government control to the actual ownership of the collieries. Moreover, state ownership generally leads to higher production costs which Indian industries can ill afford at the present stage of their development. India's industrialisation depends to a very large extent on the proper utilisation of her power resources, including coal. The need to follow a cautious policy in this matter cannot, therefore, be overemphasised, for any hasty measure, which would tend to dislocate the working of the coal industry, would jeopardize the industrial future of the country.

The Committee are also opposed to the Government exercising control over production and distribution of coal. These points have been further dealt with in subsequent answers.

FINANCE

Question No. 11.—The coal industry passed through a serious depression during 1923-30, during which period even with a constantly rising coal consumption, coal prices registered a sharp and continuous decline. This process continued till 1936 and even at the outbreak of world war II coal prices were too low. In the absence of an adequate return fresh capital was not forthcoming. Procurement of capital becomes further difficult for the collieries in view of the fact that the collieries are wasting assets. Consequently, collieries have not been able to obtain finance for modernising their equipment and technique by installing modern machinery. The Committee suggest that to overcome this difficulty, the Government should advance loan to those collieries which desire to instal modern equipment at low rate of interest.

Question No. 12.—The Committee agree that over-capitalisation is detrimental to the stability of the Industry. Over-capitalisation may be due to two reasons. It may be due to either floatation of new companies with too large a capital or due to installation of plant and machinery at inflated costs. Over-capitalisation due to the second reason has been partially remedied by granting to the industry special depreciation for the purpose of taxation. The Committee, however, feel that to make this concession effective, the Government should not insist on the present time limit that these would operate only till March, 1950, but should allow special depreciation on all plants and machinery which have been certified and for which orders have been placed.

PRODUCTION

Question No. 13.—The Committee admit that the output per head of the Indian Coal Industry is lower than that of other countries. They understand that it is only 0.2 to 0.6 ton per head in India as against the high figure of 2.1 tons per head in the U.K. and even higher in the U.S.A. Regarding the ratio of cost of coal per ton to the wages, the Committee would point out that conditions in different mines vary considerably and as such it is not possible to indicate any representative figure in this behalf.

Question No. 14.—The Committee suggest that the following methods should be employed to improve the output of Indian coal mining labour:

- (a) Mechanisation.
- (b) Better arrangement for circulation of tubs.
- (c) Better haulages, haulage roads, etc.
- (d) Improvement in the health and standard of living of miners.

This would depend on several factors. In the first place, the wages should not be allowed to fall below the economic level and at the same time the miner should be educated with a view to improving his standard of living. Arrangements should be made for the supply of cheap consumer goods which would go a long way in creating a desire for more amenities of life. Similarly, their standard of health should be raised by creating in them a taste for better type of food. The present cut in the cereal ration is likely to effect the health of the miners adversely, and therefore, it is suggested that efforts should be made to restore the rations to the previous level. Steps should also be taken to wean the miners from their drinking habit.

Question No. 15.—The Committee do not consider that the system of coal raising contractors tends to improve output. They also do not consider that this system should result in unsystematic mining methods provided proper supervision and controls are exercised by the management.

Question No. 16.—With State assistance in obtaining machinery, railway sidings and adequate labour, the Industry should be able to make up the deficiency between the demand and supply. It is learnt that some collieries are compelled to restrict their output, due to lack of sufficient loading accommodation and proper siding facilities.

The Committee suggest that the following methods should be employed to increase the output:

- (a) By opening New Coal Fields.
- (b) By developing and enlarging existing coal fields.
- (c) By giving railway facilities for sidings, and regular wagon allotments. At present the transport bottleneck is most

serious and without considerable improvement thereof it would not be possible to relieve the existing shortage.

- (d) By importing mining machinery and resorting to mechanisation.
- (e) By ensuring a supply of stable and healthy labour.

DISTRIBUTION AND MARKETING

Question No. 17.—The Committee are opposed to the formation of a Central Marketing Agency under the Government aegis. They do not consider that Government interference in the actual marketing of coal would be conducive to the best interests of the industry. If, however, it is found necessary the industry may form a Central Marketing Agency on a voluntary basis. The Committee consider the present system of price fixation to be satisfactory and are of opinion that prices should be fixed according to the quality of coal.

Question No. 18.—The Committee consider that a complete analysis of all qualities of Indian coal is essential before any attempt is made to regulate the use of different coals for different purposes. The Committee further suggest that there is need for intensive research work to find out as to which quality of coal would suit a particular industry best.

Question No. 19.—It is suggested that to start with, regulation might be confined to certain class of consumers, particularly railways, whose requirements are highest. The Committee further feel that the railways should be asked to accept lower grades of coal and suitable locomotives should be designed for that purpose.

Question No. 20.—The Committee are of the opinion that the responsibility for despatching the right quality of coal to a particular consumer should be that of the colliery management. Disputes in this subject can be settled, as in the past, direct between the seller and buyer.

Question No. 21.—The Committee consider that this matter requires a detailed survey and examination at expert level.

TRANSPORT

Question No. 22.—The distribution of coal from the different producing centres is being regulated at present to some extent, but any rigid regulation in normal times appears to be unnecessary. Further, it is felt that on grounds of quality alone regulation would, probably, be difficult to enforce, particularly in view of the fact that the tendency is more and more towards specialised plants which can work only with a particular grade of coal.

Question No. 23.—The Committee do not consider that the suggestion of pooling of railway freights to keep prices of coal at various centres at the same level is practicable. On the contrary, this would upset the location of these industries, which have been established near the coal field **to take advantage** of proximity to the coal fields, as they would be required to pay higher

prices for coal only to provide coal at a lower cost to the outlaying industries. This, in their opinion would be unfair.

Question No. 24.—The Committee are in agreement with the principle of differential freight for different qualities of coal and suggest that a lower freight should be charged for lower grade of coal to encourage their consumption.

Question No. 25.—The Committee are of opinion that freight rates for coal should be determined in accordance with the principle of "what the traffic can bear"?

Question No. 26.—The Committee are in favour of reduced freight rates for train loads of coal consigned to one consumer.

Question No. 27.—The Committee are of opinion that route restrictions should be avoided as they are apt to create serious difficulties both for producers and consumers. There are a number of stations where these route restrictions are applied from time to time.

Question No. 28.—The Committee are in agreement with the suggestion that there should be a common pool of wagons for the East Indian Railway and Bengal Nagpur Railway, operated by a central body. This would result in efficient distribution of wagons and would save handling, shunting, marshalling of wagons and congestion of goods and would, therefore, facilitate movement of wagons.

PRICE AND PROFITS

Question No. 29.—The Committee feel that price stabilisation is absolutely necessary for the future prosperity of the coal industry and, therefore, do not consider that the return to free competition would be desirable as it would result in price cutting and lowering of prices beyond the economic level. The Committee have already suggested in their answer to Question No. 17 that the present system of price fixation is satisfactory and should be continued.

Question No. 30.—The Committee do not consider that price stabilisation can be achieved by only controlling prices of coal to be supplied to State Railways and Iron and Steel companies.

Question No. 31.—See answers to Question Nos. 17 and 29.

Question No. 32.—The Committee are of opinion that the difference in prices F.O.R. Colliery siding or loaded in trucks between the different grades of coal as classified under Colliery Control Order is satisfactory and should be proportionately the same with any reduction in prices of the various grades of coal.

Question No. 33.—The Committee consider that the prices should be on the basis of the cost of production and in doing so the Government should always take into account cost of production of marginal collieries. With regard to profit margin to be allowed, the Committee are of opinion that adequate consideration should be given to the peculiar circumstances of the coal industry, that is, that a colliery is a wasting asset and that coal mining is a dangerous and uncertain business. Consideration should also be given to the fact that coal is in short supply

and adequate profit margin is necessary to provide incentive for raising output.

Question No. 34.—The Committee feel that there is no need for controlling middleman's commission. The present commission might appear excessive but the Committee feel that as soon as the existing control is removed, and there is a free competition amongst the middlemen the rate of commission would come down considerably. The reason for the present high rate of commission is that the Controller is generally reluctant to allow any change in the middlemen and the consumer has to take supplies through the fixed middlemen. Moreover, the conditions both in regard to output and transport of coal are abnormal and, therefore, rate of commission is slightly higher.

TAXATION

Question No. 35.—The Committee consider that the coal industry suffers from unduly heavy and multiple cesses and taxation. The Committee in their answer to Question 12 have already drawn attention to the provision of insufficient depreciation to meet the present high cost of plant, machinery, building and development.

Here the Committee wish to invite attention to the problem of assessment particularly in Bengal of road cess based on profits. Its rate in Bengal is -/1/- in the rupee on profits and in Bihar it is -/1/- in the rupee on profits plus a cess on despatches. It will be admitted that in times of falling prices it weighs heavy on the collieries. Further, the fact that the cess is not allowed as a charge against profits for the purpose of calculating income-tax, it causes additional hardship. They further feel that the collection of cess should be on despatches instead of on profits, as that would simplify calculation and at the same time ensure a fixed income.

Further, the Committee wish to suggest, in this connection, that provision should be made for an amortization of mineral rights as a charge against profits for tax purposes. The Government would appreciate the need for allowing the collieries for building reserves for the development and working the lower seams. It is well-known that India's shallow coal seams are becoming exhausted and it is becoming increasingly necessary to work the deeper seams. The Committee, therefore, suggest that the Government should grant a special rate of depreciation on mineral rights to enable the collieries to build adequate reserves.

NATIONAL AND INTERNATIONAL COMMERCIAL POLICIES

Question No. 36.—India has hitherto exported coal to Burma, Ceylon, Malaya, Philippines, China, Egypt, the Middle East and the Mediterranean. The Committee consider that the Government might take steps through international agreements to guarantee regular exports to those markets. Exports should, however, be allowed when the production is in excess of the internal demand. Further, only non-metallurgical coal should be exported.

Question No. 37.—India's implementing of International Labour Conventions in respect of colliery labour has raised the cost of production. It has, also, raised the standard of living of the colliery labour.

III

CONSERVATION OF HIGH GRADE METALLURGICAL COAL

Question Nos. 45 and 46.—In view of the limited resources of high grade metallurgical coal, the Committee are of opinion that its use should be restricted to the Iron and Steel Industries and other metallurgical works.

Question No. 47.—The Committee are of opinion that restriction should be enforced by legislation and that metallurgical coal should not be used for purposes other than metallurgical works.

Question No. 48.—The Committee do not consider that the enforcement of the above restriction would lead to a reduction in the output of such coal, as the existing steel works which are expected to expand and the new steel works which are under Government's consideration will consume all the coal that will be produced. Moreover, some of the existing collieries might have reached exhaustion point and their further operation might not be on economic proposition.

CONSERVATION OF HIGH GRADE STEAM COAL

Question Nos. 51 & 52.—The Committee consider that there is need for conserving high grade steam coal. High grade steam coal should only be used for steam raising purposes where low grade coal is found to be unsuitable by the industry.

Question No. 53.—The Committee are opposed to the State taking over the ownership of high grade steam coal.

CONSERVATION GENERALLY

Question No. 54.—As a result of depillaring, enforcement of the Rules under the Indian Mines Act and improvement of technique in pillar cutting there has been some increase in the percentage of extraction of coal in India. It is, however, difficult to give the exact percentage.

Question No. 55.—It is felt that universal application of stowing might be helpful in securing the maximum extraction of coal, but it is suggested that the State should bear the major share of expenditure in regard to stowing to enable collieries of all grades to derive the maximum benefit from stowing.

Question No. 57.—As mentioned in reply to question No. 55, universal application of stowing for all grades of coal is necessary both for safety and conservation purposes. The Coal Mines Stowing Board have in the past concentrated on

safety measures and it is desirable that greater attention should be paid to conservation of coal and major portion of the cost of stowing should be borne by the Government, if stowing is intended to assist all collieries.

Question No. 58.—The Government should deliver sand to all collieries at fixed prices irrespective of their situation, and from the point of view of conservation, sand should be supplied at as cheap a rate as possible. As a matter of fact, the Government might consider the desirability of delivering sand for stowing purposes free of cost. The system, prevalent at present is not encouraging. The amount granted to the various collieries by the Government for stowing purposes is not enough to meet the total requirements of the collieries. The collieries which are very near to the river-beds can alone take advantage of the existing system. The Government should also acquire rights for sand quarries if that is considered necessary.

Question No. 62.—In reply to this question the Committee would invite attention to the pamphlet "Industrialisation through Electrification of the Railways" written by Sir Padamji P. Ginwala, a member of the Committee of the Indian Chamber of Commerce. The Committee of the Chamber trust that the views of Sir Padamji will be carefully considered by the Coal Fields Committee also. For ready reference a copy of the pamphlet is enclosed. It will be noted that Sir Padamji has made out a *prima facie* case for the immediate electrification of those sections of the E.I.R. and the B.N.R. which are within a radius of 150 to 200 miles of the coal fields of Bengal and Bihar. The views of Sir Padamji have been summarised in the pamphlet on pages 58 to 62. The Committee would, however, like to observe that the work of supplying electricity to country side should preferably be entrusted to a special company in which the Central or local Government, concerned may have financial interests and the supply of electricity to the country side should be under their auspices so that it could be regulated in the general interests of the country as a whole.

Question No. 54.—For the future development of the Chemical industry in India, the development of the coal tar industry is essential. The Committee understand that the Tar Distillation industry in its present stage is not able to meet the full requirement of the essential chemicals. On the development of the coal-tar distillation industry also depends the successful production of various products like synthetic drugs, dyes, plastics, rayon and many fine chemicals. Further India's requirements of some of the essential coal-tar chemicals will, to a large extent, be met from the recovery of the bye-products from coke-oven gases and coal-tar produced at present. It is, further, suggested that investigation should be made with a view to obtaining larger quantities of coal-tar and its bye-products from Indian coal by adopting low-temperature carbonisation and other advanced techniques evolved in foreign countries. In view of the above, the Committee consider that there is a special case for the development of coal-tar distillation industry in India, as, apart from meeting

India's requirements of essential coal-tar chemicals and synthetic products, it will also go a long way towards supplementing the supply of petroleum and other natural gases of which there is a shortage in the country.

VI

MINING LEASES AND FRAGMENTATION

Question No. 67.—The Committee are of opinion that grants of prospective licenses and leases for short periods is not in the best interest of the industry because it is felt that it encourages the leases to resort to harmful methods of extraction and to work the mining properties with a short-term of view to derive maximum profits within the time stipulated. It is, therefore, suggested that the period of leases and prospective licences should be long enough to give the lessees and enduring interest in the mining properties and encourage them to equip the collieries with modern machineries and equipments.

Question No. 70.—The Committee consider that uneconomic colliery holdings are not desirable in national interest and should not be allowed to continue. Such holdings should be merged with other collieries to make the holdings economic. This would ensure maximum output of coal with minimum loss.

Question No. 71.—The Committee agree that suitable legislation should be enacted to ensure that the areas of leases in future are of proper economic size. In addition, at the time of the execution of leases it should be borne in mind that natural underground barriers such as outcrops, faults, or dikes are fixed as frontiers.

VII :

OPENING OF NEW COAL-FIELDS

No comment.

VIII

ADMINISTRATIVE MEASURES

Question No. 74.—In the opinion of the Committee, a Central Organisation would have the advantage in working over the various Committees existing, now, because then a co-ordinated centralised policy can be evolved and followed by the Central Organisation in respect of matters pertaining to the coal industry as a whole. The composition of the Committee should be determined in consultation with the coal industry and trade.

Question No. 75.—The Committee consider that unification of the multiple bodies dealing with utility and health services in coal fields is essential and this in turn should be amalgamated with the Central statutory body mentioned above.

Oral evidence of Messrs. Karamchand Thapar and L. N. Birla, representing the Indian Chamber of Commerce, Calcutta.

The Chamber consists of about 350 members representing practically all interests, *e.g.*, jute, paper, coal, textiles, steel, railways, etc.

Maintenance of the export trade is desirable but not at the expense of the internal market. In any case, there should be a ban on the export of metallurgical coal.

The present shortage of coal supplies is temporary and the country's requirements, taking into account also the projected industrialisation programme, can be met without much difficulties if adequate facilities, such as machinery, are made available to the industry.

Railways will need to greatly increase their rolling stock to cope with peak demands, but there should be no increase in freight rates on this account. Freight rates on coal are no doubt less as compared with the rates for other commodities, but as it is a basic commodity, it deserves further concessions, *e.g.* a reduction of rates in the off season. Every possible facility should be afforded for industrialisation and coal, as being the main source of power, should be made available as cheaply as possible, but not by reducing the price of coal to an uneconomic level as happened in the early thirties.

Siding facilities are not adequate at present. It is not possible to prescribe a minimum output to qualify a colliery for a siding; the policy should be a liberal one which would take into account the need for development of coal production and the plans made therefore and not based only on the present output of a colliery. Collieries that raise a particular quantity should have siding right up to pithead where as in the case of collieries raising less than a specified quantity, the siding need not go up to pithead. The fact that the output of a colliery is low should not alone debar it from this concession as it may be able to raise more and improve otherwise also, given additional facilities. It will be advantageous if application for siding facilities are considered by an independent body in which the railways and the industry are represented; this body should consider whether a colliery is of economic size or not. A factor which should be taken into consideration is the nearness of a colliery from main or branch lines. If a colliery is very close, it should be granted a siding even though the output may be low. But this is not to say that the size of a colliery should be entirely ignored; size and output are important, but they should be considered alongside potentialities of development. The uneconomic nature of a colliery cannot be judged by its size only and a fairly detailed examination will be necessary in each case to decide this question.

Small collieries have frequently experienced difficulties in obtaining finance. In the past, banks have suffered losses over advances to small collieries and since then have been reluctant to

provide facilities. There is need, therefore, for Government assistance to small collieries in the matter of finance.

Industry would be willing to contribute towards establishment of training centres or schools for the benefit of labour and mechanics. It seems erroneous to suggest that education may lead to the desertion of the miners to other occupations.

The wages of labour have sometimes fallen below the economic level and it is desirable to guard against this by the fixation of a minimum wage.

The Managing Agency system has worked satisfactorily. Managing Agents do no doubt control several other interests, but this does not necessarily lead to a conflict of loyalties or interests; the coal industry not only does not suffer, in consequence, but production and consumption become more assured. Competition is, of course, restricted, but the system has helped in the development of national resources particularly in the initial stages and the criticisms hitherto made against Managing Agents are completely unjustified.

Consuming interests (*e.g.* steel and cement) should be permitted to own their collieries without any limitation as to the extent of the holdings save in regard to metallurgical coal; as to this, the steel companies should not be allowed to acquire properties out of proportion to their requirements over a reasonably long period.

In view of the inefficient working of the railway collieries, they should be closed down or handed over to private concerns for exploitation. In any case, the Chamber is against Government enterprise in the coal industry. The railways should get the supplies from the market and there should be no difficulty in this so long as the prices are controlled by a Statutory Board and are maintained at an economic level. The failure of market collieries in the past over railway contracts was due largely to the overloading of a few collieries.

A Central Marketing Agency exists in the case of cement and partly sugar, but the case of coal is different as there is variation in the cost of production, qualities, prices, grades, etc. There is, however, probably no objection to a voluntary agency of this sort in the coal industry.

The period of a prospecting licence should be at least 3 to 5 years and of a mining lease 100 years.

It is not desirable that the development of new coalfields and the opening up of new collieries should be controlled by Government; the present restriction under which the permission of the Coal Commissioner must be obtained before new collieries are opened should be discontinued. The Chamber is, of course, opposed to the opening of uneconomic units particularly those employing the scientific methods of working. But it is not necessary to set up a licensing authority to ensure proper working; the conditions under which new collieries should be opened should be laid down and subject to these conditions being

omplied with, there should be no interference by Government. In the event of continued bad working, there may be a case for the State taking over a colliery, but this should be a matter for decision by a Statutory Board on which all interests will be represented. As to the leasing of coal bearing areas, no control either by Government or by the Statutory Board should be necessary.

It is not necessary for Government to assume power to prevent over-capitalisation; the shareholders of a company can, or should be left to, look after their interests.

Price and regulation of the use of coal could be controlled, but there should be no control over distribution. The first two can be maintained without necessarily adopting the third. In the determination of price, profit should be based on the cost of production and not on the capital invested by a company.

If prices are fixed, there is perhaps no place for middlemen so far as big collieries are concerned; but they will continue to be useful to smaller collieries by performing dual functions, as at present, towards the collieries and the consumers and financing the smaller collieries if required.

If the present structure of the industry is defective, the existing leases stand in the way of conservation, and if there are other difficulties that are responsible for the dissipation of coal reserves, the matter should be left to be dealt with by the Statutory Board, subject to the condition that, if possible, existing leases and private transaction are not disturbed. The State through this Board should intervene to put matters right short of acquiring or operating coal properties.

WRITTEN EVIDENCE SENT IN BY THE UPPER INDIA CHAMBER OF COMMERCE, CAWNPORE.

Questionnaire II.

Question 18.—Reference is made to the complete regulation of the use of different coals for different purposes and on the lines of war-time practice. It is considered that the complete regulation of different coals for different purposes presents a very strong case indeed. Such regulation should not only be possible on the lines of war-time practice but should be compulsory. Coal distributed correctly to the best advantage could result in the conservation both of coal and transport.

Equipment should be provided in order to enable a complete analysis of all Indian coals being conducted at frequent and regular intervals. Caking and coking qualities should also be determined when routine tests are conducted.

Question 21.—It is recommended that coal screening be inaugurated at all the Indian coal mines. Slack coal should be capable of passing through a $\frac{1}{2}$ " diameter ring including 'fines', namely everything under $\frac{1}{2}$ ", mainly suitable for pulverised fuel firing. Coal for mechanical sto-

ker firing should all pass through a 1" diameter ring with approximately 20 per cent to 25 per cent fines. Rubble should be passed through 2" OR 3" diameter ring according to consumer requirements and should be reasonably free from dust. Steam coal should comprise grades above 3" diameter mesh but not 'run of mine'.

Question 61.—Pulverised fuel firing provides means of utilising slack coal. Low grade coal may also be used but it is not economical to transport low grade coal over long distances as high ash content coal should not be used for pulverised fuel firing.

Question 62.—Movement of high ash content coal to be used in plant remotely situated from coal mine is considered to be uneconomic and also a waste of transport. Low grade coal might be used to advantage in areas adjacent to coal mines and the incombustible residue utilised for stowing disused mines.

Oral evidence of—

- (1) Mr. P. D. Singhania representing Messrs J. K. Industries Ltd., Cawnpore.
- (2) Mr. D. May Arrindell representing Messrs Upper India Chamber of Commerce, Cawnpore and Employers' Association of Northern India, Cawnpore.
- (3) Mr. T. A. Bull representing Messrs British India Corpn. Ltd., Cawnpore.

By request, all the three representatives were examined together.

Regulation of Use.

Mr. Arrindell agreed that there was need for the regulation of the use of coal, the different qualities of coal being definitely allocated to the requirements of various industries. Two considerations should be taken into account in the matter—

- (i) as far as practicable, the despatch of high-ash coals over long distances should be avoided, and
- (ii) subject to that, the attempt should be made to stimulate the use of lower grades of coal, in view of the need for conserving the limited resources of high quality coals in India.

Regulation of use is possible and it is recognised that this would involve control over production and distribution; indirectly, a control of production would also be necessary so as to ensure that adequate quantities, and no more, of various grades are produced to meet the known demand.

While controlled distribution was essential, it was not certain that a Central Marketing Agency was needed. Perhaps the analogy of sugar might be adopted the output of a factory is placed on one or more of the 26 or 28 grades fixed (which are also determined the prices that may be charged) and the output from various zones is assigned to different areas of the country. In the case

coal, if the requirements of an industry are determined and the quality of coal from various mines fixed, it might be possible to allocate the output of a colliery or collieries to an industry requiring their output. In further discussion, however, Mr. Arrindell recognised the limitations of his scheme and agreed that the authority controlling distribution should provide the machinery, but at no extra cost to the consumer, which will link a consumer with a colliery producing the type of coal needed. This, in effect, is the Marketing Agency envisaged. But the present type of middleman in the coal trade is certainly undesirable.

Whatever control is necessary over production, distribution and marketing must be exercised by one single central authority, principally composed of Government representatives.

Mr. Singhanian recognised the need for regulating the use of coal and ensuring that a consumer gets the type of coal best suited for his needs. For this purpose, there should be a careful study of the coal requirements of the various industries and thereafter supply should conform to optimum needs.

As a matter of fact, it is even desirable that in the establishment of industries in future, attention should be paid to, and some control exercised over, the type of coal and the type of boiler or power plant to be used, so as to eliminate, as far as possible, the consumption of high grade coal, which is in short supply. For the same reason the siting of industry so as to enable the utilisation of hydro-electric power should be encouraged, and if necessary enforced. Even railways might utilise hydro-electric power for traction purposes. Even if coal raisings and transport improve, and more coal can be made available to the consumers, this policy should be adhered to in the interests of conservation of coal and rationalisation of industry. Necessary powers in all these matters should be taken by Government.

Messrs. Arrindell and Bull were in full agreement with these views but Mr. Bull added that in regulating the use of coal there would have to be a system of grading, as for export coal. For the extra benefit consumers will derive from this, they will be glad to pay.

SEASONAL DEMANDS AND STACKING

Mr. Singhanian, dealing with the question of the seasonal variations in the movement of coal, stated that complications arose primarily because of the coal requirements of seasonal factories (such as ginning factories) as opposed to perennial factories. The attempt should be to send coal throughout the year to both seasonal and perennial factories, as this would even out wagon demand. If stacking by consumers is necessary, in consequence, this should be undertaken. As a matter of fact, stacking was quite common before the war and as much as 6 months' requirements used to be held in stock. There should be

no difficulty in stacking 3 to 4 months' requirements; this could be done either by individual consumers themselves or on a pooled central storage basis by the various consumers at a place. Mr. Arrindell agreed with the foregoing views.

RAIL FACILITIES

As regards rail transport, Mr. Singhanian thought that the wagons available for transporting coal should be increased and that these wagons should be used exclusively for coal movements. Mr. Bull mentioned that in the U. K. wagons are so set apart for coal but it was explained that this practice is now being gradually abandoned. Mr. Singhanian agreed that, if the provision of the above additional facilities necessitated an increase in coal freight rates, it would have to be cheerfully accepted, though he thought that the extra outlay will pay for itself without any enhancement of rates.

On the question of pilferage and short delivery of coal, Mr. Singhanian was of the view that, as public carriers, the Railways should bear full responsibility. Once this is done, he was sure the Railways will take effective steps for preventing or minimising pilferage. If the assumption of this responsibility necessitated the charging of a small premium, it would be acceptable, but the present disparity between owner's risk and railway risk rates was so great that it was a positive discouragement to the booking of coal at railway risk. If the disparity cannot be removed, freight should be charged only on the quantity of coal, delivered, though perhaps an allowance of 2 or 3 per cent could be made for loss of weight through evaporation of moisture. Mr. Arrindell referred to the frequent difficulties that arise over the question of sidings and stated that applications for sidings should be decided by an independent authority.

ZONING OF SUPPLIES

Mr. Bull, speaking on the zoning of coal supplies, pointed out that difficulties may arise as a result of the varying grades of coal that may be needed by consumers in a certain area; certain of these grades may not be available from the supply zone allotted. But he agreed that, if provision was made for meeting special requirements from outside the normal supply zone, zoning could be enforced by allotting supplies from the most economic of various sources. MR. SINGHANIAN agreed.

CONTROL OF PRICES

As regards the price of coal, Mr. Singhanian was initially of the view that there should be no control. Coal producers had for many years suffered from uneconomic prices and Government had not come to their aid. The matter should be left entirely to the colliery owners and consumers but there should be a statutory restriction on the producers' margin of profit. Since

coal is a wasting asset, this margin might reasonably be 15% on the capital invested. *Mr. Bull* speaking in his personal capacity, thought there should be a control of prices, but the prices should be fair to the consumer; otherwise output may fall. Elaborating his point, *Mr. Singhanian* considered that, so long as there was a control over distribution, prices would not rise unduly high because of the interaction of supply and demand. If, however, it is true that the short-fall in the availability of coal is likely to continue over a period, he would concede the need for price control so long only as scarcity conditions last. Prices should be fixed by a body on which the Government, the consumers and producers are represented and six-monthly revisions should be made. *Messrs. Arindell and Bull* were emphatically of the view that the present control must be continued.

COAL REQUIREMENTS OF CAWNPORE.

The industrial requirements of coal at Cawnpore now are about 600 tons a day plus the needs of the Electricity Supply Co. and much of the coal is needed for steam raising, for which inferior grades could have been used but for the fact that the boilers etc. have been designed for the use of higher grades of coal. The boilers can, however, be adapted, though this would be expensive.

RESEARCH.

Messrs. Arrindell, Singhanian and Bull all recognised the importance of fuel research and thought that industry would quite willingly pay any cess that may be imposed for furthering research.

69. WRITTEN EVIDENCE SENT IN BY THE INDIAN MERCHANTS, CHAMBER, BOMBAY.

QUESTIONNAIRE II

I. CONSTITUTIONAL.

In view of the national importance of the coal industry, my Committee held that the Central Government should be vested with power to regulate mines and minerals development and also the production and distribution of coal. Suitable legislation must be enacted to vest such powers in the Central Government on the lapsing of the emergency powers, by virtue of which the Central Government exercised such powers during war years. Failing this legislation, vital problems of production, supply and distribution of coal will fall within the purview of the Provincial authority and this will result in unco-ordinated and inefficient handling of the coal problems which, for their satisfactory solution, demand the formulation of comprehensive Central policy on an all India basis. In addition, Central regulation of coal will further facilitate research, marketing of coal, the application of any scheme of rationalisation and co-ordination with the Indian States. As a basic national industry, the coal industry must be regulated by the Centre rather than by the Provincial Governments.

2. Formulating of separate policies on different aspects of the coal industry by different Government Departments, as at present, has resulted in lack of co-ordination and integration of the policies leading to a great deal of overlapping and inefficiency. My Committee, therefore, consider it necessary that a separate Department should be created under a Member of the Viceroy's Executive Council, dealing with all questions—relating to minerals and mines, including coal. As for coal, under the Member-in-charge of minerals and mining, an all-India Coal Board should be created. This Board must consist of various interests, such as producers, consumers, distributors, labour and Provincial Governments, with a Chairman appointed by Government. For the efficient working, the Board must be sub-divided under several Committees with well-defined functions, such as:—

(i) *Production*.—The Production Committee must seek to the targets of production in the light of the present capacity and future requirements.

(ii) *Consumption*.—The Committee must determine the requirements as to total annual consumption and monthly consumption.

(iii) *Transport*.—The Transport Committee must undertake the allotment of transport according to consumption requirements taking into consideration the relative needs of the Railways and industries.

(iv) *Distribution*.—Distribution plants must be fixed in the light of the decisions arrived at by the Consumption Committee.

II. ECONOMICS OF THE COAL INDUSTRY

STRUCTURAL ORGANISATION OF THE INDUSTRY

In the opinion of the Committee, there is no need for any radical change in the structural organization of the coal industry. It will be possible to eliminate some of the defects which have characterised the system of Managing Agency, with the Central authority regulating and co-ordinating the coal industry. However, in order to facilitate the healthy functioning of the industry as a whole, there should be no differential treatment between the different units of production, viz. (a) collieries controlled by Managing Agents who have other industrial interests, (b) collieries which are privately owned, and (c) collieries primarily owned and operated by consumer interests such as the Railways, Iron and Steel Companies, Cement Works, etc. While there can be no objection to the Indian Government Railways and other consumer interests owning and operating their own collieries, it should be particularly provided for that, by virtue of their non-commercial character, they should not adversely affect the price structure of the industry. Several instances may be pointed out in the past, when the Railway Board's Coal Purchase Policy has resulted in forcing down the general level of prices, with unhealthy repercussions on the efficiency and prosperity of the other units of production in the coal industry. My Committee, therefore, are of the view that

either the consumer interests referred to above should confine themselves to the consumption of their own production, or, if they have to enter the market for the purpose of trade, they should be put on the same level as others and no special preference, in point of prices, should be permitted to the Railways.

DISTRIBUTION AND MARKETING (Q. 17-21).

Question No. 17.—My Committee are of the opinion that even if feasible, it is not desirable to form or create a Central Marketing agency for coal, as it would seriously interfere with the trade machinery already existing. The normal trade channels must be utilised for the purpose, under suitable supervision and regulation. With a planned programme of production, consumption and distribution chalked out and executed by the machinery suggested by my Committee in reply to Question No. 2, it should be possible to prevent over-production, wastefulness and a sudden slump in prices. For the present, my Committee consider the system of price fixation allied to Government controlled distribution as adequate for securing the necessary stability in the industry.

Question No. 18.—In the view of my Committee, the present method of analysis is defective and as such it will be necessary to introduce a complete analysis of all Indian coals for a more efficient regulation of the use of different grades of coal for different purposes. It may be pointed out, that at present there is already a practice of directing different coals for different purposes. It would be more helpful if suitable regulation is devised, keeping in view the requirements of the consumers. The Government must expedite research, both on metallurgical and non-metallurgical coal, so that different categories of coal may be easily allocated to different industries according to their requirements. My Committee suggest that coal should be distributed on seams, and in case of collieries containing different seams coal should be considered from the lowest seam, unless there is special scope for the higher grade coal. Coal from different seams may be classified into groups as under:—

Group I :	from seams	6 to 9
II :	"	10 to 12
III :	"	13 to 15.

Question No. 19.—Please see reply to Question No. 17.

Question No. 20.—There should be separate department as indicated in reply to question No. 2.

TRANSPORT

Question No. 27.—The industry has experienced in the past a large number of difficulties owing to route restrictions, wagon shortage, and uneven distribution. The department looking after the

allotment of transport must fix the programme in advance as far as possible and should see that it is fully carried out. In case of extraordinary difficulties, proper notification must be given in advance so that the consumers may be able to make suitable alternate arrangements.

Question No. 28.—My Committee agree to a common pool of wagons, operated by a Central body. It should be the function of this Body to see that the programme of the allotment of wagons is properly carried out and a more efficient distribution is facilitated.

PRICE AND PROFITS

Question No. 29.—In view of the experience of excessive competition, leading to uneconomic conditions, and instability in the coal trade, my Committee consider the fixation of prices by a Central body is essential for stable and satisfactory conditions in the industry.

Question No. 30.—My Committee do not consider it desirable that price control should be confined only to large consumers like the Indian Government Railways and the Iron and Steel companies. Instead of providing a sufficient impetus for achieving stable conditions in the Industry, it may lead to intensification of competition with undesirable consequences in the competitive sector of the industry. My Committee, therefore, suggest that prices should be controlled for all coal supplies.

Question No. 31.—My Committee would like to suggest that under the machinery recommended in our reply to Question 2, there should be a Price-fixing Board, representing the Government, producers, consumers and distributors. The basis of price fixation must be on the seams as mentioned in our reply to Question 18.

Question No. 32.—In view of the simpler mining operation and the consequent lower cost of production, the present price of the inferior grade coal is proportionately much higher than that of the high grade coal. The difference between the price of high grade and low grade coal should be about 50 per cent. This is only a tentative suggestion. The question should be worked out on a scientific basis, taking into consideration various factors such as cost of production, freight, the possible diversion of labour, etc.

Question No. 34.—The middleman in the coal trade has played an important role. He assumes *del credere* risk on the transaction and accepts necessary responsibilities. The Commission paid to the middleman must be commensurate with the services he renders to the trade.

In the end, my Committee would be very glad to depute their representative for any explanation or discussion that may be necessary in connection with the views expressed above.

ORAL EVIDENCE OF MESSRS. RATILAL M. GANDHI M.L.C., MADHAVLAL M. BHAT, A.C. RAMALINGAM AND C. L. GHEEWALA, REPRESENTING THE INDIAN MERCHANTS' CHAMBER, BOMBAY.

Question.—You have stated that the coal industry being a basic national industry must be regulated by the Centre rather than by the Provincial Governments. In view of the pending constitutional changes do you think it is feasible that some sort of division of responsibility in regard to the regulation of the coal industry should be made? There may be a co-ordinating policy at the top, but the Provinces might be asked to act as agents for the execution of the policy.

Answer.—It is a very large political issue. We do not know exactly what is going to be the constitution of India and as to what subjects will be allocated to the Centre and what subjects to the Provinces. But, on the whole, from the point of view of all interests concerned, it would be advisable—our Committee cannot say whether it is feasible, for this is a matter for the politician,—to have central co-ordination. We would go so far as to say that legislation must be enacted to have such powers in the Central Government. We think that a comprehensive Central policy on an all-India scale is necessary and I think we stick to it. There are several factors which are common to the whole of India and which cannot be dealt with piece-meal by the various 'provinces. So far as the administrative part of a plan is concerned it may be possible to hand over some duties to the provinces with certain guidance and certain rules.

Question. You have suggested that there should be an all-India Coal Board which must have various Committees for Production, Consumption, Transport, Distribution, etc. Is it your suggestion that these bodies should be purely advisory in character?

Answer. We do not know whether Government will give any statutory powers to such bodies. But a merely advisory capacity will not serve the real purpose. They should have certain statutory powers.

Question. You have stated that there should be no "differential treatment between the different units of production". What exactly do you mean by this?

Answer. There are three main units of production. We had in mind the differential treatment which is often being given to the Railways and other private-owned mines. We have amplified it by the statement in regard to the railway collieries "by virtue of their non-commercial character, they should not adversely affect the price structure of the industry". That is in regard to railway owned coal-mines.

Question. It means that the State should step in and interfere to a much larger extent than it does now in these matters?

Answer. To a larger extent in cases where it is apparent that other interests are at a disadvantage. I would not say categorically that the State should intervene in a broad way, but I should say that whenever there is any disadvantage to the other

units or interests, then the State should see that all interests are treated equally.

Question. You are in favour of price fixation, you are in favour of Government controlled distribution and you are in favour of a complete regulation of the use of coal. Do you think these aims can be achieved without some sort of a Central marketing agency, also Government controlled?

Answer. It will be possible in view of what we have stated of having a Central Board with executive powers.

Question. That Board will step in and control marketing?

Answer. Yes, it will more or less control.

Question. Then would you do away with the present trade machinery?

Answer. I should think there is a fundamental difference—the central marketing agency will more or less deal with the trade as such. We do not want that the normal trade channels should be interfered with. They should be able to carry on their usual trade with no interference. What we are afraid is that if there is a central marketing agency, it will then more or less take up the function of trade as such.

Question.—If there is a complete regulation of the use of coal by the proposed statutory board or coal board, will there be any place for what are known as middlemen?

Answer.—Ordinary traders are not eliminated. Middlemen play a very important part. There is no organisation to take their place. Suppose a consumer requires 5,000 tons of coal. The middleman knows what kind of coal can be got from where. Then there is the question of transport and indenting of wagons. The Middleman looks after the interest of the consumers. We do not want the Government or the proposed board to interfere with middlemen.

Question.—I am anxious to know what will be the functions of the middlemen when the new type of the Coal Board is functioning.

Answer.—I will mention some, leaving the question of the function of the Board aside. By setting up a Central Marketing Agency you are depriving the right of the trader. Now some coal has been allocated to a particular industry. The middlemen will see what coal is required and they will undertake to get the coal from some colliery. They will do all the services from getting Railway Receipt on despatch, etc. Some times there may be delays on the part of the railways in moving the coal and there may be so many other complications. Therefore to see to all these things efficiently and ensuring coal supply the middlemen are necessary. The small individual consumers will not bother about these difficulties.

Question.—May I briefly outline to you some of the functions of a Central Marketing Agency?

(1) Publicizing the qualities of the various coals and encouraging the use of certain types.

(2) Assisting in making pooled supplies to a group or groups of consumers in one area.

(3) Enforcing any regulations regarding use that may be considered necessary by the proposed Coal Board.

(4) Avoiding the defects of the existing system of free competition and limiting the range of dangerous competition.

Could you tell me if the middleman can perform any of these functions?

Answer.—He performs now all these functions. You suggest that the Government should eliminate the trade and put somebody else to do this work. We would not like the Government to take upon itself the function of trading as such. That should be left to the middleman.

Question.—Do you consider the present controlled prices reasonable?

Answer.—They are a little higher than they need be.

Question.—Will not a reduction in price of lower grade coals affect the output of such coals?

Answer.—I do not think so.

Question.—Would you agree to zoning proposals?

Answer.—All the Ahmedabad people were getting coal from the C.P. and C.I. coalfields. There was no difficulty in the allotment of wagons from the C.I. and C.P. coalfields. From the transport point of view, if you group, it is all right. From the consumers' point of view, our answer is 'no'. But we do not know whether the output will be equal to the requirements.

Question.—It has been suggested that with a view to conserve coal resources, we should examine the possibility of converting some of the industrial units from coal burning to oil burning. Do you consider that this is desirable, particularly in view of the fact that we have to import all the oil we need?

Answer.—It will more or less depend upon the scope for development of the coal industry. The question of conversion from coal to oil is a highly debatable one and we would not like to commit the Chamber by giving a reply one way or the other.

70. WRITTEN EVIDENCE SENT IN BY THE ORISSA CHAMBER OF COMMERCE

QUESTIONNAIRE I

(1) The conditions which impressed the Committees of 1920 & 1937 still exist and there should be control over methods of extraction, first working, depillaring, rotation and isolation of working, dimensions and position of barriers, measures to extinguish or circumscribe fire in closed-down collieries which are dangerous to life or property. If by giving more powers to the Mines department and by establishing a Mine Stowing Board have improved the situation we approve of the same.

grading and Export:—

(2) Indian coal should have first preference for India's needs.

(3) Not to our knowledge.

(4) We cannot say how the Indian coal competed South African coal in foreign markets, but the bounty fed South African coal ousted the Indian coal from Western Indian markets. Many of us are afraid that the same may occur again.

(5) We do not know.

(6) In pre-war days the railway freight per ton to Bombay, Madras & Karachi from Calcutta was in some cases 3 times the freight charged by ships including port charges and insurance.

(7) Even regrading the coal Seams, will not enable the prospective buyer the quality he wants. Take No. 10 Seams of the Jharia Coal field. Start from Nudkhurkee to Jharia. The quality differs as you proceed towards Jharia. No. 10 cannot have the same quality everywhere and as such it cannot have the same price.

(8) We are for grading of coal for internal market. This will enable the buyer to know actually what he buys.

(9) We cannot answer.

Port facilities:—

(10) We cannot answer.

(11) We do not know.

(12) We cannot reply.

Railway facilities:—

(13) It is for the Railway to answer.

(14) We do not know.

(15) We are not in the full know of the matter and as such we give no answer to this.

(16) Not to our knowledge.

(17) We do not know.

(18) It is for the Colliery Proprietor to answer.

(19) to (25) We do not know.

Railway coal requirements:—

(26) Railway Board to answer.

(27) Railway to answer.

(28) We do not know.

(29) We do not know.

(30) We do not know.

Stowing:—

(31) and (32) We do not know.

Miscellaneous:—

(33) to (38) Not to our knowledge.

(39) There is practically no educational facilities available in the coal fields for the betterment of the condition of labour. There should be free primary schools for children in every colliery.

(40) Education.

(a) Education of their children.

(b) Improvement of Dhourah's better housing.

(c) Old-age pension.

(d) Maternity-leave with full pay.

(e) Sick-leave with full pay.

(f) Educative-films should be shown to the labour every week.

QUESTIONNAIRE II

(1) In our opinion the Central Government should enact legislation to vest in itself power to regulate mines and mine minerals development; we do not think control over production will be at all necessary in pre-war period.

(2) Our opinion is that the Central Government should have powers over coal-mines to regulate labour and safety in mines only. In case the coal fields in India are nationalised as in England, we want the portfolio underhead coal to go under a minister (in the Centre) who will be responsible to the legislature. An Executive member for coal, who is not at present responsible to legislature, will, in our opinion be of any help either to the trade or to the Public.

STRUCTURAL ORGANISATION OF THE INDUSTRY

(3) As at present, the European interest in the trade is upper-most. The railways come next, a handful of small collieries fell in the lot Indians. These small collieries supply the needs of Indian Industry and the public. We do not consider the structure of production of coal at all satisfactory. Coal should belong to the Nation and it should be nationalised as elsewhere.

(4) State-management is best when a country is free. In our country the Managing Agency system is better than Government control.

(6) In pre-war days the railways being the biggest buyer of Indian coal many collieries (Indian-owned) came to grief. The European Group of Collieries, the Tatas' and the Martins' have their own consuming interests. They are not much concerned for sale of this coal. Proprietary Collieries which are mostly Indian save the people's needs—as soft coke producers, and supply the smaller Indian industries. They used to supply a considerable quantity of coal for the Railways. In pre-war days many of them came to grief for having no market. Our opinion is that a same fate approaching them soon. The opening of the Railway pits have hard hit them.

OWNERSHIP AND MANAGEMENT

(7) It is true that private ownership leads to dissipation of Coal-reserves. This being a national asset we discourage private ownership.

(8) We do not understand the proposal fully. Does the Government want to nationalise the Coal Industry? In that case we understand it. Now can the government acquire the mineral rights when there is ownership. We understand rail-road co-ordination scheme *i.e.*, division of shares amongst the railways, the Motor owners and the public, under Government control.

(9) This is for a lawyer to answer.

(10) State-ownership under the present system of Government in our opinion will not improve the matter much. We certainly want it after India has got National Government. We thereby are of opinion that the interest of those who are already in mining Industry, whether European or Indian should be properly compensated before such steps be taken by the State.

Finance.—(11) Grouping together of such mines.

(12) Not to our knowledge.

Production.—(13) It is for the Colliery proprietor to answer.

(14) Better living and better wages.

(15) Yes in the interest of the Contractor. Not necessary.

(16) Grouping the smaller Colliery proprietors.

DISTRIBUTION AND MARKETING

(17) A system of fixation of prices for coal according to classification or quality is sufficient. This should be fixed per ton at the Pit-head. The pit-head price should include the percentage of profit allowed by the state to the owner. The retail price should also be fixed. All these prices should include the railway freight as in the case of cloth.

(18) We do not think that there is a case for complete regulation of the use of different coal for different purpose. The buyers know their needs and if the prices be fixed they will have no difficulty to know what they are purchasing.

(19) We are not in the favour of Regulation for all—for the use of coal. The Railways should purchase as per regulation which should be such that they should not be *means* only to deprive the Indian Proprietors Coal which are mostly 2nd class. The regulations for railways coals if formed should be done in consultation with a Committee of experts of whom there must be members from the Indian proprietors of coal.

(20) The responsibility lies with the Manager of the Colliery *i.e.*, the Proprietors.

TRANSPORT

(21) All the fields in India do not possess good coal. Jharia & Bengal coal-fields yield the best variety of coal. The Ramgarh coal is also good. Assam coal has a special difficulty. As such how can each field supply the needs of a Zone? Jharia, Ramgarh & Bengal supplied the needs of practically the whole of India. Unless the quality of Singarini coal be improved by Scientific methods and also the Talcher, India is to depend on coal supplied by Jharia, Ramgarh and Raneeganj. Transport economy is a great necessity.

(22) Pooling of rail freights to keep the price of coal uniform at various centres at the same level. This alone is a dangerous thing. The freights of raw material used by different centres should also be made uniform. The Bengal Cotton Mills will suffer if Bombay or Ahmedabad gets a special rate for coal. If for instance there be special rates for coal from Calcutta to Bombay, there should be special rates for cotton to Calcutta. What is true for Bombay & Calcutta is true for other centres.

(23) We do not agree.

(24) The Railway freight should be only the cost of moving the coal on the railways.

(25) No, to all.

(26) This leads to consumption and inflation of price of coal.

(28) We are in favour of a Central Body.

PRICE & PROFIT

(29) In the opinion of the Government there will be heavy deficit in production of coal in next two years. If this be true the Government should fix the price.

(30) The Government should not leave others to be plundered.

(31) If the production of coal is short of the requirements the price should be fixed for the interest of the consumers.

(32) We cannot answer in the absence of a colliery control order.

(33) We cannot answer.

(34) Including the middle-man's commission we were getting the supply at a rate of annas eight per maund at Cuttack in pre-war days. The middle-man's profit is negligible and it plays a very minor part if there be wagon supply.

TAXATION

(35) It is for the colliery proprietors to answer.

NATIONAL & INTERNATIONAL COMMERCIAL POLICIES

(36) When the Govt. is of opinion that the supply will be short of the demand for India's requirements we are against exports.

(37) There has been very little improvement of the conditions of colliery labours in India.

CONSERVATION OF HIGH GRADE METALLURGICAL COAL

(38) to (42) For Iron & Steel Companies to answer.

(43) Not known to us.

(44) It is for an expert to say. The Govt. should appoint an expert for this purpose and include the railways for his inspection.

(45) Not to our knowledge.

(46) Not to our knowledge.

(47) We do not know.

(48) A Committee of Scientists is to be set up or submitting a report on the conservation of coal, high grade or otherwise in our country.

(49) An expert's opinion is necessary.

CONSERVATION OF HIGH GRADE STEAM-COAL

(50) It depends on the calorific value of coal and percentage of ash contents. We cannot name the deposits.

(51) A Committee for preservation of fuels in India is necessary to answer this. The members of the Committee should be expert Scientists.

(52) We cannot answer.

(53) Expert's advice is necessary.

CONSERVATION GENERALLY

(54) Not known to us.

(55) Mining Engineer to answer.

(56) Colliery Manager to answer (57) Engineer's to answer.

(58) Collieries to answer.

(59) Colliery proprietors and lessors to answer.

(60) We do not know.

(61) Yes. No. The State should prepare these things.

(62) We welcome the idea of cheap electricity & Electrification of railways. This should be amongst the post-war plans.

(63) The present method incurs huge national loss of bye-products by the present crude method of producing soft-coke.

(64) Coal-tar and liquid fuel should be produced in India by the State.

MINING LEASES & FRAGMENTATION

(65) to (71) We do not know.

OPENING OF NEW COAL FIELDS

(72) The Geological Department of India to answer.

(73), (74) & (75) We suggest a Minister of Mines at the Centre who will be responsible to legislature to be at the head of departments mentioned.

WRITTEN EVIDENCE SENT IN BY THE PUNJAB CHAMBER OF COMMERCE, NEW DELHI

QUESTIONNAIRE I

Question No. 1.—(a) We consider that the conditions referred to in the Questionnaire do, in a general way, still prevail, but there has been an appreciable overall improvement owing to the protective and other work which has been carried out in the interim.

(b) The powers granted to the Mines Department are, in our opinion, adequate, but the legal penalties imposed and the exigencies of the law appear to be inadequate to prevent evasions.

(c) We consider the creation of the Stowing Board to have been satisfactory and its powers to be adequate. Please see also our reply to question 31.

(d) We do not consider that the introduction of a Statutory Authority would have been, or would now be advantageous.

Question No. 2.—Although conditions at the present time are not quite comparable to those obtaining in 1925, in that the demand for internal consumption is far greater, we feel that an export market is of the utmost importance both for its own value as a national asset in international trade, and as a counter to depression in the coal trade itself. The history of the coal trade over the last thirty years shows that period of depression are both frequent and acute, and while the magnitude of the Indian industrial development plans is accepted, we do not feel that these plans give any guarantee against either general industrial depression, dependent perhaps on world-wide conditions, or specific depression in the coal trade. We therefore consider that exports

remain a matter of very great importance to the trade. We consider that all that is necessary at present time to enable Indian coal to retain its export markets is the removal of the existing ban on exports ; with that, the existing grading arrangements and financial concessions are adequate.

Question No. 3.—We consider that the shipment of coal on grading board certificates has been of considerable value in reinstating Indian coal in foreign markets and in Indian ports, as it has given consumers an accepted standard and Government guarantee of quality.

Question No. 4.—The only information we have in our possession is as follows :—

- (a) The Ceylon Govt. Railways' coal contract for 1936/37 was secured for Indian coal at Rs. 10.20 against quotations for African of Rs. 11.25 and Rs. 11.58 per ton.
- (b) For 1938/39 the same contract was again secured for Indian at Rs. 12/10/- per ton against a quotation for African of roughly Rs. 3/- per ton (higher).

Question No. 5.—Yes.

Question No. 6.—The rates of freight on coal from Jharia to the ports in question are as follows :—

Karachi City . . .	Rs. 16-12-10
Madras Harbour . .	Rs. 13-11-7
Bombay	Rs. 14-13-7

NOTE.—(i) In each case the figure shown includes the present freight surcharge of 20% and excludes the production and labour found and other cesses that are normally collected by the Railway along with railway freight.

(ii) For the purpose of this question the Jharia rates may be taken as typical of the Bengal/Bihar coalfield. Freights from other booking stations are in some cases a few annas higher and in others a few annas lower.

The level of sea freights from Calcutta at which shipments to these ports become economical by comparison with the rail route is approximately as follows :—

Karachi	Rs. 12/-
Madras	Rs. 9/-
Bombay	Rs. 10/-

Question No. 7.—At present the grading of seams by the Grading Board is optional at the request of the Colliery. We consider that the original grading of seams by the Board should remain optional, but that the Board should be given the power to re-grade whenever they think fit any seams already graded. We do not consider that seams as a whole should be graded for export, as quality would then inevitably suffer, thereby defeating the object of grading which is to ensure that only good quality coal is shipped ; grading for export should therefore continue to be applied to specific sections as at present.

Question No. 8.—We consider the grading of coal for the internal market service a useful

purpose. While there are certain individual anomalies in the grading of seams by the Coal Commissioner, we feel that on the whole the system has proved successful and should be made compulsory. It may be noted moreover that the grading of seams is the only satisfactory standard to which price control can be linked ; any attempt to link price control to individual collieries or seams in the Bengal/Bihar coalfields would, we consider, be very cumbersome and probably inequitable.

Question No. 9.—No.

Question No. 10.—We will not attempt to describe the coal loading facilities at Calcutta, but would like to draw attention to the reduction in coal loading berths from 10 before the war to the present number of 4 ; while the concentration of loading facilities and the pooling of coal have contributed to the successful working of the Port of Calcutta under stress of war, these conditions are not conducive to satisfactory shipment of exports under normal trading conditions. We consider additional loading berths are necessary, and in particular we wish to emphasize the complete inadequacy of the present stocking round. Even with the limited number of shippers who have been permitted to operate during the war, stocking space at the Docks has been most inadequate, and the situation will be more acute when there are a large number of shippers operating, and a variety of different grades and sizes of coal to be held at the Docks awaiting shipment.

Question No. 11.—We consider that generally speaking the facilities for discharging coal at Indian ports are inadequate, though it must be admitted that in a number of cases, e.g. Cuddalore, Tuticorin etc. this is inevitable owing to the nature of the port itself. Wherever the nature of the port permits an endeavour should be made to provide the ideal conditions which are the discharge of coal direct into wagons with the steamer lying alongside the berth. Discharging facilities have latterly been particularly inadequate at Madras.

Question No. 12.—Bunkering facilities are available at Calcutta, Bombay, Madras, Cochin, Karachi, Vizagapatam and Chittagong. At other ports, e.g. Cuddalore, Negapatam, Tuticorin, Calicut, etc., no facilities. Facilities, where they exist, are fair.

Question No. 13.—In our opinion the railway facilities in the coalfields and elsewhere are not even adequate to handle the present despatches of roughly 25 million tons per annum, much less the estimated future requirement of 32 million tons. The importance of this question of coal transport cannot be over-emphasised, as it carries with it not only the prosperity of the coal trade but also the success or failure of the whole of the Indian industrialisation programme. We are not qualified to comment in detail on the existing, or desirable, railway facilities, but we will mention a number of general aspects of this problem on which we consider detailed examination to be necessary :—

(a) The present general inefficiency of Railway operation, particularly on the E.I.R. We attribute this at least in part to nationalisation and

its attendant evils of Government service rules, such as the placing of square pegs in round holes, inability to impose any discipline on subordinate staff or to dismiss them, and general indifference all round.

(b) Lack of power, coupled with inadequate workshop facilities or arrears of maintenance, as a result of which the proportion of sick locos is unduly high.

(c) Lack of facilities at depot stations and elsewhere to handle the coal traffic offering. In this connection it may be noted that in the past when larger tonnages of coal were handled the Railways particularly in the Jharia field had the comparatively easier task of moving coal from a smaller number of larger collieries, e.g., Standard, Bararoo, Lodna, Kustore, Loyabad, etc., whereas these units are now raising much less, the traffic comes from a much greater number of small collieries.

(d) The Dhanbad allotment area is a somewhat unwieldy unit, which in normal times handles about 20% more traffic than either of the other two Bengal/Bihar allotment areas. With the proposed expansions in the Bokaro and Karanpura coalfields which are essential if the increased output target are to be achieved we think the opening of a separate allotment area to serve the Bokaro/Ramgarh and Karanpura coalfields should receive serious consideration. The headquarters of this new allotment area would have to be determined in the light of railway operation; possible alternatives are Barkakana, Bokaro and Gomoh.

(e) The debacle on the E.I.R. in November 1945 which is supposed to have been due to an epidemic of beri-beri on the Dinapore Division suggests that the personnel reserve for sickness contingencies is not inadequate. This question should be closely investigated.

(f) Examination of the Railways' ability to cope with coal traffic should not be confined to the despatching end. There are a number of important junctions which have more or less permanent restrictions which interfere seriously with coal movement, e.g. Mokemeh Ghat, Katni Murwara, Waltair, Khandwa, Agra East Bank, Ujjain, etc. Steps should be taken to break-down these limitations, especially if traffic is to increase.

(g) Various restrictions have been imposed, quite rightly, by the coal control during the war on the movement of coal from certain collieries, fields etc. in certain directions for traffic reasons. The Railways should now aim at being able to move any coal in any direction according to the demand of consumers or colliery owners.

(h) Coal, like many other Indian commodities, is a seasonal traffic, that is to say that in the December/May half-year output, and therefore potential despatches, may always be expected to be appreciably higher than in the June/November half-year. Unfortunately the busy season for coal coincides with the busy season for a number of other commodities, and this is one reason why coal transport is always in difficulties during this season. A more serious aspect of the matter,

however, is that this is also the reason when a number of seasonable industries want to take their coal; principal among these are Cotton Ginning, Sugar Mills, Rice Mills, Tea Gardens (partially), Tobacco Curing, Brick Burning, and domestic consumption for Northern India. In the majority of cases a consumer insists on getting his coal during the season or not at all; if therefore coal cannot be delivered owing to transport difficulties the demand is automatically extinguished; the cotton is not ginned or the bricks are not burnt, and that much off-take is lost for ever. This is a serious matter for the coal industry and the only solution is for the Railways, which are a national service to equip themselves to handle the maximum traffic. Whatever any one may do or say, India is, and will always remain, a seasonal country.

(i) Now that all the major Railways, particularly the B.N.R., are Government controlled, the old system of routing should be revised. Under this system, which is still in force, the basic principle is that the Railway on which the traffic originates carries the traffic to the furthest possible point on its own system before handing over to a foreign Railway; thus coal booked at Assansol (E.I.R.) for Bombay would be carried as far as Naini before being handed over to the G.I.P., instead of being handed over to the B.N.R. at Assansol for carriage by the much shorter route via Nagpur. Many of these anomalies have been temporarily overcome by the Coal Distribution organisation, but the rules are still there and will be reverted to if they are not changed. We consider also that the telescopic rates of freight on coal should be applied only in the total distance travelled, and not calculated separately according to the distance travelled over each individual Railway system, as at present.

(j) Our impression is that there is no serious overall shortage of wagons on the Indian Railway system, and that the apparent shortage of wagons at collieries at certain times is more a symptom of the operational and other troubles to which we have already referred than to an actual lack of rolling stock.

(k) We have already emphasised the importance of coal transport both to the country and to the trade. At the time of writing there is a large unabsorbed demand for coal throughout India; there is also an appreciable surplus of available coal over and above what the Railways can move. The only factor which prevents this unabsorbed demand and this coal surplus from linking up, to the mutual benefit of the country and the coal trade, is the transport bottle neck. The major contributor to this bottleneck is the E. I. Rly. which handles the great bulk of the coal traffic; we consider therefore that a most searching enquiry should be made into the operation of this Railway and the facilities provided by it. The present Committee, with its assessor, is quite competent to undertake such enquiry and we consider it should be most strongly pressed to do so.

Question No. 14.—The 10 hour wagon supply system is only of advantage to large Collieries particularly those with mechanical screening

plants. As far as the Railways are concerned the operation or extension of this system is limited by line capacity as well as by terminal and weighment facilities, as it involves supplying a Colliery with the same number of wagons in two placements instead of one. We consider the Railways should aim at being able to adhere to 10-hour system whenever demanded by Collieries.

Question No. 15.—As long as the transport situation was such as to permit full wagon supplies against indent the old allotment system was satisfactory. When wagon allotments were short, however, the available supplies after meeting high priorities were apportioned colliery-wise and not consumer-wise, this resulting in inflated prices for loaded coal wagons. It would perhaps be more equitable for shortages to be distributed, consumer-wise, as under the present war-time system of allotment.

Question No. 16.—As far as our Collieries are concerned, no private weighbridges have been installed. We consider however that the installation of such weighbridges at -/1/- per ton rebate is beneficial to both the Collieries concerned and to the Railway administration. We are of the opinion that this concession should be resumed and that a permanent concession of -/1/- per ton would be adequate compensation to Collieries.

Question No. 17.—We have no complaints.

Question No. 18.—Any measures by which the existing procedure could be expedited would be welcome.

Question No. 19.—No complaints or comments.

Question No. 20.—The great majority of the Collieries under our Managing Agency are fitted with mechanical loading devices of one type or another, and their efficient and economical working is dependent upon an assured supply of open wagons. The question as framed could not be answered without producing a large amount of probably unnecessary detailed information, but it should perhaps suffice to state that the supply of covered empties to mechanical loading collieries, which is all too prevalent at the present time, results not only in unnecessary expenditure owing to double handling but also in loss of output. We know of no suitable adaptation for loading a covered wagon by mechanical plant. We should however perhaps mention that pilferage of coal from open wagons throughout Indian Railway system is so heavy that every means should be explored of realising the utopian dream of a covered wagon that can be loaded from mechanical plant.

Question No. 21.—We are in favour of the introduction of the zoning of coal freight rates in the Raniganj field. A suitable central point should be selected as the basic point from which rates for the entire field should be calculated, as in the case of Jharia. We should also like to raise the question of the zoning of freight rates for the Karanpura field; the figures given below show that owing to its location and the accident of the existing railway access to the field it is at an appreciable disadvantage as compared with the Jharia field, in respect of despatches in both

the up-country and the down-country direction. This anomaly should be removed by the application to Karanpura of the Jharia freight rates.

Question No. 22.—Except for major industries such as steel, cement, etc. we do not think consumers would be attracted by seasonal freight rates. In their case it would probably not be profitable for the Railways to offer rates that would be really attractive, and moreover the limited stacking space of most consumers would probably prevent them from building up sufficiently large stocks to give any appreciable measure of traffic relief to the Railways during the busy season. We have already touched on the subject of seasonal consumers in para. (b) of our reply to Para. 13 of the questionnaire, and we do not think many of them would be prepared to lock up money by buying their coal six months ahead of an always uncertain season; as a single instance we quote the case of cotton ginning factories, a large number of which are owned by big operators or speculators and only let out at the beginning of the season, often to a different party each season.

Question No. 24.—As far as we are concerned in 1933 we owned six coal cutters of which three only were in operations. With coal prices at 1938 levels the Collieries were concerned with only one thing viz. raising coal at the cheapest price possible and at that date it was in many instances cheaper to raise coal by hand than use machines. This is only in relation to our Collieries which were not laid out for machine mining and in the Collieries where machine mining was instituted from the start the same considerations may not have applied.

Another factor was that in the depressed state of the coal industry many coal companies could not raise the very considerable sums required to purchase mechanical equipments.

Today our Collieries have in operation or about to go into operation fifteen coal cutters and it is now proposed to start a new colliery which will be highly mechanised along modern lines. We have also greatly expanded our use of electric drills etc.

The main obstacle to the use of mechanisation at the present time is lack of trained staff which can only be secured by the setting up of training schools for this purpose.

With wage rates at their present levels there will inevitably be an increased tendency towards mechanisation, which appears to be desirable in the light of the increased demand for coal. The application of mechanisation is however limited by underground conditions and in certain collieries which were not laid out for mechanisation and which are nearing the end of their life the possibility of increased mechanisation is not great. As far as new coalfields are concerned it is likely that most collieries will be laid out for mechanisation in view of labour shortage for mining purposes and the high rates, compared to pre-war levels, now payable to labour.

Question No. 25.—It is the normal practice to lay rails as near the working face as possible and this is done throughout our Collieries. The shortage of loading labour following the withdrawal of the women from the mines will no doubt provide a further incentive to all collieries to reduce the carrying distance for loaders.

Question Nos. 26 to 30.—These questions do not appear to be addressed to the coal trade.

Question No. 31.—The coal Mines stowing Board has done most valuable work in certain projects designed to deal with major fires in the coalfields such as that in Jharia Bazaar, etc. If only for this reason their existence has been fully justified.

As regards voluntary stowing, while their contributions towards the surface costs have been of assistance to collieries, such contributions are so small relative to the total cost of stowing that it is doubtful whether they have had any effect at all in inducing further stowing in the coalfields. From the answer to Question 32 it will be seen that the cost of stowing per ton of coal extracted by stowing can be as high as Rs. 2/8/- per ton compared to which the Stowing Board's contribution which is limited to a maximum of Re. 0/6/- per ton is negligible. The result is that those who would stow whether there was a Stowing Board or not are doing so while many whose pits require stowing are unable to do so because of the meagre nature of the Stowing Board's contributions.

If the contributions of the Stowing Board amounted to the total surface cost of stowing or to 75% of the total cost both underground and surface there would undoubtedly be a great increase in the total stowing done in the Coalfields. In some instances however this would require to be supplemented by the Stowing Board itself putting up the capital expenditure for Ropeways etc., unless groups of small Collieries are willing to combine together to produce the necessary finance.

The only other complaint to be made against the work of the Stowing Board is in connection with their slowness in dealing with applications when immediate action may be called for.

Question No. 33.—During the war it has been possible to acquire land for mining purposes under the Defence of India Rules and the ease with which this has been effected has thrown into relief the inadequacy of the previous arrangements under the Land Acquisition Act. The normal procedure of acquiring land takes at least six months and in many instances land is required urgently by Collieries for purposes such as dumping overburden spoil for open cast workings, depilating operations, construction of huts for temporary labour etc. It is therefore most important that modifications to the existing procedure should be introduced by which coal Companies can be put in possession of the land they require within not more than one month from the date of application.

It is understood that the Provincial Governments will no longer allow land to be acquired

under the Defence of India Rule and early action is required to amend the existing legislation.

Question No. 34.—Briquetting has, as far as we know, only been carried out in recent years in the Assam and Baluchistan coalfields. In the latter the controlled price of briquettes is Rs. 55 ex-plant with the cost of coal at about Rs. 30. Even then briquettes are more costly than steam coal imported from the Bengal/Bihar fields, and briquetting is therefore obviously not commercial proposition in Bengal/Bihar where steam coal is freely available at lower prices. In our opinion it is only a possible proposition in the tertiary coalfields of Assam, Baluchistan and the Punjab, where firstly the percentage of steam coal produced is negligible and almost the entire output is slack, and secondly the finished product has a substantial freight advantage over steam coal imported from the more distant fields.

Question No. 35.—To date no Coal Washing Plants have been installed in this country. We understand however that Messrs. Tata Iron and Steel Co. propose to instal certain plants in the near future and Messrs. Bird & Co. are now examining the possibility of so doing. Messrs. Bird & Co. have in the past submitted samples to U.K. for this purpose but at the price of coal at that date it was uneconomical to take any further action. It is likely however that in the future further development will take place in this field.

As far as Iron & Steel Industries and other consumers are concerned, the main importance of coal washing in this country appears to be not so much the production of super selected coals but in the washing of inferior coals such as 11 and 10 seams down to such content figures at which they are more suitable for the manufacture of metallurgical coke. It is also possible that consumers of coal for steam raising purposes such as Electric Supply Cos. may be induced to consume inferior coal provided it is washed down to lower ash content figures than are obtained in the coal in natural state.

Apart from the Capital Expenditure which is likely to be in the neighbourhood of Rs. 7/8 lakhs for a reasonable sized plant, coal washing is a fairly expensive process and involves a loss in the yield in the coal during the process. Both the cost and the loss in the yield vary from coal to coal so that accurate figures cannot be produced. It is however safe to say that if coal prices return to the pre-war levels it will not be possible for Coal Companies to afford the installation of coal washing plants.

Coal washing is also only economical for reasonably large outputs and therefore unless control washeries are installed it is unlikely that any but the bigger collieries in this country will be in a position to install coal washing plants. The normal minimum capacity plant is capable of dealing with 40 tons per hour.

Question No. 36.—We welcome the establishment of the Fuel Research Station, but have no special points to raise in this connection.

Question No. 37.—We have not as yet engaged in the recovery of benzol at our Coke Plant. In our opinion the abolition of the present excise duty, or a substantial reduction in it, is essential as an encouragement to production.

Question No. 38.—Existing rescue arrangements in the coalfields appear quite adequate and should be able to deal with any emergency that may arise provided collieries themselves co-operate in maintaining their own rescue teams and provided necessary extensions are made to other fields as developments may demand.

Question No. 39.—We maintain at many of our collieries our own schools which are financed by the Coal Companies themselves. The actual provision of State education in the coalfields does not appear to be fully adequate and it is desirable that increased facilities should be provided but should be uniform throughout the country and not only in coalfields. In this connection it should be emphasised that the miner today tends to aim at earning only sufficient to keep himself and his family alive on his expected standard of living so that if the wage rates rise his inclination is to do less work rather than aiming at an increased standard of living. This tendency could perhaps to some extent be curbed and a desire to earn more money inculcated by improved educational facilities.

Question No. 40.—We agree that a settled and contented labour force is an essential foundation for a stabilised industry. This however postulates a revolutionary change in the habits and mentality of the labour which cannot be expected to take place rapidly. Among the steps which would assist to stabilise the labour force are :—

- (a) More and better housing accommodation.
- (b) An improved and more varied supply of consumer goods.
- (c) Improved welfare and amenities.
- (d) Increased facilities for primary education.

We must emphasise that the general welfare of the labour force has always been one of our first considerations ; for many years past however the price of coal has been so uneconomic that our activities in this direction have of necessity had to be drastically curtailed. With the better prices for coal now obtaining and which must in our opinion be maintained, much more can be done for the benefit of the labour, and increased attention is already being and will continue to be given to this matter.

72. WRITTEN EVIDENCE SENT IN BY THE EASTERN CHAMBER OF COMMERCE, CALCUTTA

QUESTIONNAIRE I

I. The fuel reserves of the country are, at best, limited and the existing knowledge of coal deposits of superior grades, particularly of the metallurgical variety are not sufficient to confirm any optimistic view. Moreover, India being poor in natural fuel resources, the coal mines need be considered as national assets of great strategic value.

As the only large-scale industrial fuel available within the country the coal deposits should be carefully preserved and cautiously used. In the past, continued sub-division of coal-bearing lands, crude mining methods, improper extraction and inadequate protection against fire and inundation by water have together inflicted considerable damage to this vital mineral resource of the country and have been responsible for a great deal of wastage. It needs no arguing to press home the fact that all avenues of wastage and possibilities of damage must be adequately guarded against and the only practicable means of obtaining effective control would be to introduce a Statutory Authority on the lines suggested by the 1937 Committee. In this respect, the Committee of my Chamber regret to note that the recommendations of the two Committees previously appointed were not duly acted upon and excepting the order issued by the Mines Safety (Stowing) Act, requiring certain protective measures to be undertaken, the Central Government have so far failed to take steps to assure the conservation of coal reserves, and have thus neglected a very important part of their duty.

It is further considered that the conditions which impressed the two Committees to recommend control by the State over methods of extraction, etc., has not improved sufficiently to justify any material digression from the recommendations made by the Coal Mining Committee 1937, for setting up of a Coal Conservation Authority, vested with the necessary statutory powers. The Committees of my Chamber are inclined to the view that the installation of a Central Authority in the lines suggested above have been wrongfully delayed and should hence be taken up immediately.

II. *Trading and Exports.*—(2) Proper execution of post-war planning for industrial development of the country will vastly increase the internal demand for coal, and in consideration of the existing resources and the present overall output of the mines, it would not be of much importance to push the sale of Indian coals in foreign markets. In fact, the great changes that have occurred during the last decade and are likely to occur in near future necessitate a complete review of the economics of the Indian Coal industry and foreign sales even at better prices should be subordinated to the requirements of internal consumption for productive purposes. The Committee of this Chamber further opine that, if necessary, the export of metallurgical coal should be prohibited and only lower grades be allowed to be exported to foreign markets.

(8) Grading of Coal for the internal market is desirable and should be made compulsory by law. This will stop, to some extent, the existing misuse of coal and such grading may also be utilised for restricting the industrial uses of coal to particular varieties.

IV. *Railway Facilities.*—(13) Railway facilities now available in the fields, particularly in the Ranigunj area, are far too insufficient for the proper transport of coal. In the absence of adequate provision for wagons, track, sidings and personnel

for loading, great difficulties have been experienced by the mining industry, while the consuming markets suffered shortage. The movement of coal needs of course, be controlled specially at a time when demand far exceeds production and transport facilities are obviously restricted, but during the last few years the scheme of control as applied created a serious bottleneck and while stocks were swelling at the pitmouth, factories were running short of their fuel supply and in many cases were reported to have suspended operations for want of coal. The condition thus brought about during the war and which does not seem to have sufficiently eased out even now, points out not only the grave shortage of railway wagons available for transportation of coal, but also reveals some fundamental defect in the method of allotment. It should now be fully appreciated that the post-war development of industries will largely depend on the successful improvisation for quick and adequate movement of coal to different parts of the country. With a view to assure this my Committee suggest the adoption of some measures, broadly on the following lines :—

(a) The number of open-wagons now available at the Colliery stations should be increased by at least 25%.

(b) In bulk-transport under-loading of wagons should be checked and extra rates, in excess of the flat rate chargeable for a wagon, should be levied in detected cases of under-loading.

(c) The Railway siding arrangements in the Bengal Coal fields are anything but satisfactory. The present arrangements are far too inadequate to facilitate quick loading and easy transport. It would possibly be more convenient if a number of special colliery stations are established in the Ranee-gunj-Assansole area, exclusively for the movement of coal and these stations should be linked up with a net-work of subsidiary lines covering all the groups of mines. Double-line siding arrangements should be provided for groups of mines so that movements of wagons, up and down, may be facilitated.

(d) Where loading operations are delayed from want of personnel mechanisation of loading arrangements should be provided for.

(e) Spare wagons should be kept at colliery stations in sufficient numbers to meet emergent calls and provisions should always be made for seasonal changes in coal movements.

(21) Differential railway freight rates in the Ranee-gunj area constitute a legitimate grievance of the collieries in this zone. In fact, collieries operating in neighbouring areas have to pay different freight charges relative to the distance and this substantially reduces the competitive strength of the collieries producing the same quality of coal. The long-range net effect of such a freight policy would be to discourage mining operations at relatively greater distances. It is, therefore, essential that the group system

of railway freight rates suggested by the Indian Coal Committee, 1925, should be introduced. The Committee of this Chamber do not feel competent to propose any detailed scheme in absence of sufficient data as to the dispersion of collieries in this field and the qualities produced at each of them. But in general it may be suggested that for groups of collieries within a particular zone of say 10 square miles in area, the basic rates chargeable should be the same and different grades exported from that area should be charged extra relative to the differences in their sale prices.

(22) If possible, seasonal rates for the transport of coal by rail should be introduced to encourage consumers to obtain their coal in the second half of the year. In fact, there are considerable seasonal fluctuations in demand, particularly from the brick-fields and some other industries. From distribution point of view as well any such arrangement would be convenient inasmuch as smaller industries will be encouraged in bulk-buying and groups of industries in an area may be induced to adopt the method of joint purchase of coal and to intimate their requirements well in advance.

VI. Railway Coal Requirements.—(28) It is reported that in certain cases the Railway authorities have shown much fastidiousness in respect of their purchases of coal and qualities have been refused on high-ash content. On this point, it is desirable that coal requirements of the Railways for use in locomotives should be restricted to the lowest usable grade and if necessary these may be mixed up with superior grades in proportions essential.

VII. Stowing.—(31) The operations of the Coal Mine Stowing Board does not seem to have been sufficiently effective. To stop the possibility of subterranean fire in mines provision for voluntary stowing would not be adequate and the Government should take more powers in their hand to render such stowing compulsory in cases considered necessary. In this context it should be noted that stowing is sometimes rendered difficult for lack of sand. This point should be particularly enquired into and steps should be taken to assure adequate supply of sand to the mines.

VIII. (40) Labour is by far the most important problem of the coal industry. Migratory character of mining labour is often felt as a great impediment and it is also complained that higher wages instead of improving the position only encourage absenteeism and more frequent return to the villages. To stop this it would be necessary to make the labourer feel at home in his place of work and this would be possible only by providing better amenities in respect of housing, education of the children, medical and maternity service. Mechanisation of mining will have some good effects inasmuch as the mining labour will gradually become a specialised class and will not then profit by returning back to the land.

73.—WRITTEN EVIDENCE SENT IN BY THE FEDERATION OF MUSLIM CHAMBERS OF COMMERCE AND INDUSTRY, NEW DELHI.

The appointment of the Indian Coalfields Committee with wide and far reaching terms of reference is a welcome event in the history of Mining Industry. The recommendations of the Committee and the decisions which the Government may arrive at will have an important bearing on almost every aspect of the coal trade and mining industry.

The war has been a great dislocating factor for this industry and new adjustments have now to be made. And the requirements of post-war industrialisation are expected to be so great that coal output must immediately be increased to an enormous extent. The question is how to increase coal output substantially and permanently? The answer will depend upon diverse factors, chief of which are labour, employment of plants and mechanical devices, conservation and transport.

Labour. The difficult problem of labour deserves serious attention. The industry requires a permanent labour force with mining as its sole and permanent avocation. The present mining labour is migratory and consists of agriculturists who take to mining during their leisure periods and regard it as a means of supplementing their permanent income from agriculture. The crux of the problem is how to wean labourers from their attachment to their homes and agricultural pursuits and induce them to stay in mining as a profession.

It is generally believed that if better wages and better living conditions are offered, labour will come to stay in the mines, but experience has shown that the migratory tendencies can not be overcome by such inducements.

Permanent pay with periodical increments and prospects of promotion from one category to another, provident funds, accident insurance, sickness allowances, leave, free medical attendance, ready-made family quarters, free primary education, schools, play-grounds, etc., should be provided. Only those who are willing to migrate permanently to the mining colonies with the whole of their families and dependants should be recruited.

Women and children should be provided with facilities to do some hand-work during their leisure hours and should be assisted to sell the product locally. Spinning, embroidery, rope-making, weaving of 'navar' and so many other handicrafts can be introduced for skilled as well as unskilled workers. A small Handicrafts School may be opened where a brief practical training or demonstration be given free to the women and children of mining labourers to teach them some useful art or craft and enable them to produce some saleable articles in their hours of leisure.

In this way the standard of living can be raised and people with adventure and ambition in them induced to migrate permanently.

In our opinion, a substantial part of the cost of these amenities, etc., should be borne by the State for some time and the rest by the levy of a cess. The administration should be entrusted to Companies under the direct supervision and control of the State.

Conservation. Wastage of coal should be avoided but good coal should be mined to a larger extent. The various industries should be free to use any variety of coal which they find more economical and suitable. There should be no compulsion to use only good quality coal.

Transport. Lack of transport has been a great handicap. Transport facilities are bound to increase coal mining itself and to give a new fillip to industrialisation in the country. Railways should be equipped with sufficient wagons, locomotives, etc., to carry the total output of mines to places where it is needed.

It would not be an exaggeration to say that the production of coal can, in future, be increased *pari passu* with the increase in the means of transport.

Constitutional. In view of the impending constitutional changes it is unnecessary to express any opinion on the question whether regulation of mines and mineral development should be a Provincial or a Central subject and whether mines should be State-owned and State-managed?

Concurrent powers given to the Centre and the Provinces are a source of needless overlapping. And in practice the Centre has appropriated and will continue to appropriate all powers to itself.

Although it is difficult to foresee today what is going to be the future structure of the State but this Federation finds great force in the view that all mineral wealth should be owned and managed by the Government of the Province in which it is found.

I am directed to give below the considered opinion of the Federation of Muslim Chamber of Commerce and Industry on the specific questions raised in the Questionnaire issued by your Committee.

1. *General.*—Yes. Conditions which impressed the two Committees to recommend control by the State over methods of extraction, first working, depillaring, rotation and isolation of workings, measures to extinguish or circumscribe existing fires, treatment of abandoned mines, etc., still prevail though much improvement has been effected by the establishment of the Coal Mines Stowing Board and by adding to the powers of the Department of Mines. But we suggest that conservation should also be made compulsory as recommended by the 1937 Committee.

The introduction of the Statutory Authority on the lines suggested by the Committee, in our opinion, would have achieved greater and more rapid success.

Grading and Exports. 2. The emphasis laid on the coal export trade by the 1935 Committee does not retain as much validity as 20 years ago. Home consumption of coal increased with the establishment of new industries. The Railways were greatly handicapped by coal shortage during the war. Post-war industrialisation plans will hardly leave any exportable surplus. In fact it is estimated that the total coal output will have to be immensely increased to feed Indian industry in the not distant future.

Efforts should be made to increase coal output to meet Indian requirements and the surplus, if any, may be exported for which markets must be found. There are obvious benefits in maintaining a coal export trade but it would be equally unwise to allow Indian Railways and industries to be starved merely to continue or enlarge the export trade.

3. Grading has had great influence in reinstating Indian coal in foreign markets. Before the enactment of the Coal Grading Board Act of 1925 and the rules prescribed thereunder, foreign buyers were reluctant to buy coal and India lost her export markets. The situation has since greatly improved. Graded Indian Coal has supplanted foreign coal from Indian ports and foreign buyers are also purchasing graded Indian coal.

7. Yes. Regrading of most coal seams has become necessary. There should be no objection to regrading of Sections of seams as under the Coal Grading Board Act. On the contrary, for many reasons, it is to be preferred.

8. Grading of coal for internal markets is desirable. Modern trade tendency is to grade every commodity which is capable of being graded. Purchasers find it convenient to buy a graded commodity. If grading is made compulsory, the uniformity thus achieved will stimulate sales.

9. Quotations in sterling will not assist exporters in over-seas markets.

10. Additional loading berths and stacking-grounds are required at Calcutta.

11. Unloading facilities for coal at other Indian ports are inadequate particularly at Madras.

IV

Railway facilities. 13. Railway facilities, e.g., wagons, tracts, powers, siding, personnel, etc., are inadequate to cope with the present movement of coal and would be more so to cope with the contemplated movement of 32 million tons. The question of transport of coal is very important as the prosperity of the coal trade as well as the Post-war Industrialisation Plans wholly depend upon it. The question must be thoroughly investigated by competent official and non-official personnel to devise measures to improve the situation.

16. Installation of weigh-bridges by collieries should be encouraged by giving them a permanent concession per ton.

18. Arrangements for the grant of siding accommodation are unsatisfactory involving unnecessary delays. Existing sidings should be extended and new grants should be made in consultation with the coal trade.

20. Mechanical loading devices of various types are used by a large number of collieries but their use is limited by the shortage of open wagons. And theft of coal from open wagons has become a problem in itself.

Successful efforts have, we understand, been made to devise a covered wagon which can be loaded by mechanical means. Large-scale construction of such wagons would be of considerable help in speeding up coal transport and saving costs.

21. Group system of Railway freight rates would not be feasible.

22. Introduction of seasonal rates for the transport of coal by rail will not be a great attraction for a majority of consumers who do not usually have storing facilities and are reluctant to make advance purchases.

Big industries working all the year round will, however, find seasonal rates to be profitable but their requirements alone can hardly give the needed relief to Railway traffic.

25. Rails are generally laid up to the working face and shortage of labour is bound to compel colliery owners to do so in an increasing measure.

VII

Stowing. 31. The Coal Mines Stowing Board has rendered valuable service by assisting voluntary stowing as well as by providing measures to extinguish or circumscribe fires in collieries doing voluntary stowing. More funds must be made available to the Board to enable it to give pecuniary assistance on a more liberal scale and also to widen its scope.

VIII

Miscellaneous. 33. Summary acquisition of surface rights over land for colliery purposes should be provided for in cases of urgent necessity. The existing procedure is dilatory. During the war lands were acquired under the Defence of India Rules in a most summary manner which the owners regarded as unfair. Some amendments of the Bengal Tenancy Act may perhaps be necessary to give power in special cases of urgency.

34. Briquetting of coal may be developed in Assam, Baluchistan and the Punjab with better prospects than in Bengal/Bihar. The question should be investigated further.

40. Steps to be taken to induce the present migratory coal fields' labour to become a settled mining community may, *inter alia*, include provision for :—

(1) Wages that are demonstrably higher than the wages of unskilled and semi-skilled labour in industries of every kind or in various agricultural

pursuits, domestic services or other employments open to an unskilled or semi-skilled labourer.

(2) Modest family quarters either free or on payment of a rent which should be less than the rent paid by an ordinary agricultural labourer for his own dwelling house.

(3) Food articles, cloth and other necessities at concession rates.

(4) Other consumer goods at controlled rates.

(5) Free medical attendance.

(6) Free primary education and facilities for higher education.

(7) Other measures to increase their standard of living.

Many more inducements would be necessary for a long time to attract sufficient labour to work the mines and to induce it to give up altogether its migratory tendencies.

74. WRITTEN EVIDENCE SENT IN BY THE BENGAL CHAMBERS OF COMMERCE

I am instructed to refer to the two questionnaires dated the 1st and 15th February 1946 issued by the Indian Coalfields Committee.

2. In consultation with industrial interests, the Chamber Committee have studied the questionnaires which are primarily concerned with technical matters, affecting the coal-mining industry, on which the Chamber as such is not qualified to speak. The interests represented by the Chamber, however consider that they can usefully comment on the "Constitutional" Section of Questionnaire II and now instruct me to submit the following remarks on the two questions raised in that Section :—

(1) The Chamber is strongly of the opinion that any division of responsibility between the Centre and Provinces in respect of the natural mineral wealth of India cannot be satisfactory and since it feels that the development of minerals should be treated on an all-India basis, the Chamber supports the view that the Central Government should enact legislation to vest in itself power to regulate mines and mineral development.

The Chamber is not prepared to admit at present that there is any necessity for permanent Government control over the production and distribution of coal, but if, as appears to be the case, these subjects fall within the Provincial sphere unless the Centre takes action by legislation to appropriate them to itself, the Chamber considers that such legislation should be undertaken rather from the viewpoint of preventing unilateral action by individual Provinces in this important matter than with any intention that the Centre should take active steps towards a permanent control of production and distribution of coal.

(2) The Chamber is in agreement with the proposal that there should be one Central Government Department dealing with all questions pertaining to the coal industry, and considers that minerals and mines should constitute a separate portfolio of Government, the Geological Survey of India to be included in this portfolio.

75.—WRITTEN EVIDENCE SENT IN BY THE BIHAR CHAMBER OF COMMERCE

With reference to your letters Nos. 14(1)/ICC/45 dated 1st February 1946 and the 18th February 1946, I have the honour to say that some of the questions raised in the questionnaires issued are more or less of a technical nature and deserve a technical treatment. But on a question of principle the Chamber is strongly of opinion that in view of the great industrial developments now being planned it would be desirable to conserve not merely high grade metallurgical and steam coal but also the other varieties of coal.

While maintaining that coal industry should be left entirely to private enterprise, my Chamber is of opinion that every possible step should be taken in order to give to the industries all available help through coal. The huge wastage in converting coal into coke is distinctly a national loss and machinery should be set up throughout the coalfields in order that the gas or the liquid generated during this process of conversion from coal to coke should be fully utilised for other purposes. The Chamber is informed that Government are contemplating to set up decarbonisation plants and it feels confident that the waste now going on soon be put stop to. The Chamber feels coal should be conserved primarily for the furtherance of industries, for the purposes of electrification, for the use of railways and steam boats and other purposes, likely to develop cottage industries and for such other similar purposes. The use of coal as fuel for domestic purposes should as far as possible be not popularised. In big cities specially arrangements for coking gas could easily be made. This would remove the nuisance of smoke and would help to conserve coal for purposes for which it is primarily required. In Bihar there is abundance of wood fuel which could be utilised for domestic purposes either as wood or as charcoal prepared from such wood.

Another question which deserves to be carefully examined by the coalfields Committee is classification of coal and the earmarking it for different types of consumers. Apart from a high metallurgical coal and the steam coal there are other varieties which could easily be earmarked for instance (i) for the use of mills (ii) for the use of factories (iii) for the use of brick kilns (iv) for railways and for private domestic use. As a rule it would be desirable to insist on soft coke alone being used for domestic purposes. This will give the necessary by-products to industries and leave soft coke for domestic consumption.

The Chamber feels that the time has come that the coal prices should be stabilised. As to what this price is to be, whether it should be somewhere

near the present price or whether we should go back to the pre-war prices is a question which cannot be decided all by itself. The general rise in prices of other commodities, the rise in wages and the freight charges will all have to be taken into consideration while stabilizing the price.

In regard to administration of the coal industry it would be desirable to have a Committee consisting of Government official and representatives of the important industries including railways in order that every point of view may be represented on the Committee. The sole consideration for the Committee should however be how best to develop industries and with that object to conserve the coal for industrial and national purposes.

76. WRITTEN EVIDENCE SENT IN BY THE MUSLIM CHAMBERS OF COMMERCE, CALCUTTA

With reference to your letter No. 14(1)/ICC/46 dated the 11th March, 1946, I am directed to inform you that this Chamber subscribes and agrees fully to the replies of the Federation of Muslim Chambers of Commerce and Industry, New Delhi, in respect of the Questionnaire issued by the Indian Coalfields Committee.

I hope you will receive the replies from the said Federation by the time this letter reaches you or soon afterwards.

77. ORAL EVIDENCE OF REPRESENTATIVES OF THE INDIAN CHAMBER OF COMMERCE, PUNJAB.

The principal consumers of coal in the Punjab are Cement Factories, Cotton Ginning Factories, Re-rolling Mills, Sugar Mills, Flour Mills, and other small factories. Under the present system of controlled distribution consumers are experiencing serious difficulties over coal supplies and it is desirable that the consumers should be able to arrange their requirements directly with the mines and without the intervention of Government. The relaxation of control may mean an increase in the price of coal but this might be preferable as there would at least be a greater certainty of supply of the types of coal desired. Punjab and Baluchistan coals are being used but they are proving unsatisfactory owing to the high sulphur content and the increased consumption resulting from the inferior quality.

The increased availability of hydro-electricity is bound to give an appreciable impetus to industrialisation. But the extent to which coal as a source of power will be displaced will also depend on the cost at which electricity will be made available; the present charge in Lahore is 8 pies per unit — though thermal electricity could probably be supplied at as low a charge as 3 pies a unit. In Mysore hydro-electricity for industrial purposes is supplied at one pice per unit.

A reduction in Coal consumption in the Punjab could be secured also by reducing the freight on fuel oil which would then become a competitive alternate fuel.

2. There is no objection to the setting up of a Central Marketing Agency under the auspices of the Government.

Control over distribution would then automatically follow and on reconsideration and in existing circumstances, control over prices would also seem to be desirable. Consumers should however be consulted in regard to price fixation and this could best be secured by having their representatives on the central price fixing authority.

3. A Government agency, advised by technical experts, indicating to consumers the proper use of coal, with the object of conserving the better classes of coal for metallurgical purposes and securing scientific utilisation, would be welcome but it should be a purely advisory body; otherwise its activities may prove obstructive rather than helpful and compulsion does not always result in economy.

4. Zoning under which the country would be divided into zones of supply, according to the coal requirements of the areas and distances from the source of supply, would be acceptable, provided good coal when essentially needed (*e.g.* also for the extraction of bye-products) is made available from outside the normal supply zone at reasonable cost. It is recognised that under zoning the Punjab's requirements of coal for brick burning will have to be met from local sources and coal will not be allowed to be imported from Bengal/Bihar for this purpose.

5. There was no particular complaint about the present prices of Bengal/Bihar, Punjab and Baluchistan coals except that the price of Punjab coal appeared to be high.

Section IX

TECHNICAL ASSOCIATIONS

78. WRITTEN EVIDENCE SENT IN BY THE
GEOLOGICAL, MINING & METALLURGICAL SOCIETY
OF INDIA, CALCUTTA.

QUESTIONNAIRE I

Question 1. Yes. The action taken by the Government by establishing a Coal Mines Stowing Board is inadequate and falls short of the requirements of the country. Comprehensive measures are needed in the matter of compulsory and complete stowing with respect to all the coal seams of India, in the matter of the strict adherence to vertical rotation of working and in the matter of grading and working of the entire seam. We suggest therefore that the policy of the Government should be to achieve full conservation of all classes of coal.

The action of the Government by establishing Coal Mines Stowing Board has not been satisfactory. More action is needed. The Stowing Act should be amended so that all classes of coal be conserved by compulsory stowing.

Question 2. Coal export trade so far eastern market may be continued but export of only surplus non-caking coals other than chemical grade may be allowed.

Question 7. Regrading of the entire coal seam is absolutely necessary at regular interval of time. Because coal being a substance that has been formed by process of sedimentation varies in quality from place to place both along strike and dip and along vertical thickness.

Coal Grading Board Act should be modified in that no partial mining or grading of a seam should be allowed.

Question 31. There should be compulsory stowing in all cases. Unless there is legislation to this effect there will be no voluntary stowing even if the facilities are available.

Question 33. In Bihar (Chota Nagpur Tenancy Act) there is a provision to acquire surface rights for mining facilities quickly. Similar and uniform facilities for acquiring surface rights should be obtained whenever necessary through Central Legislature.

Question 34. Very scanty work on briquetting of coal has been done in India. Enough work has been

washed coal can be used in pulverised condition in special types of boilers. Or if the coal is a caking one it can be sent to the coke ovens for carbonisation process. The cost of the washed coal will be naturally higher than the lump coal. Coals with high ash content can however be used in powdered state with some amount of advantage. It is by comparing the costs in these two processes that one can actually decide as to whether washing would be necessary at all. For coke oven managers the caking coals with pretty high ash may be submitted to washing and thereby ash sufficiently reduced so that the hard coke thus manufactured may be better in quality and more suitable for blast furnace and other smelting operations. It is to be found out as to what extent the reduction in ash percentage is actually obtained by washing in the case of our caking coals and with what amount of increase in cost. The cost is an important item. If the reduction in ash is not sufficient it is not desirable to undergo this treatment with sufficient increase in cost. The hard coke with little higher ash can be used in the blast furnaces with slight adjustment of fluxing materials provided other physical and chemical properties of the coke are satisfactory. Regarding economics of coal washing—the cost of coal grinding, washing plant, washing, drying, blending, and briquetting etc. have to be taken into account as against the reduction in ash.

Question 36. Researches in the matter of hydrogenation of coal in various ways to get sufficient amount of liquid hydrocarbons, low temperature carbonisation for the manufacture of domestic coke with the recovery of important by-products, partial hydrogenation for converting non-caking or weakly caking coals to caking ones, pulverised coal firing, complete gasification of low grade coals, desulphurisation of high sulphur Tertiary coals, coal washing, briquetting etc. etc. should receive immediate attention of the Director of the Fuel Research Station started at Dhanbad. Researches on safety measures and coal mining should also be started.

Question 37. Benzol is recovered at only few places in India in the high temperature carbonisation process. There is enough scope in India to recover Benzol from all the existing coke ovens. Moreover other by-products like tar and tar products and other chemicals should also be

QUESTIONNAIRE II

Question 1. We consider that on principle Central Government should have power to regulate mines and mineral development and control the development and distribution of coal so that there may be uniformity in all matters throughout the different provinces.

Question 2. Yes, a department should be created to deal with all matters relating to mineral development including coal. Besides there should be Statutory Body including technical experts to render help and guidance in all matters.

Question 6. Railway owned collieries depress the coal market. As far as possible railway owned mines should be kept as reserve in case of emergency and for future requirements.

Besides, all metallurgical and high grade coals, should be conserved and not be used in Railway locomotives for raising steam.

Question 7. Yes, we agree that the private ownership and uncontrolled grant of lease have led to premature dissipation of many coal properties. The Government should acquire mineral rights. Government should take power to revise if necessary the defective provisions in the existing leases. Difficulty of proper control by Central Government with respect to proper working of mines and mineral properties is one of the disadvantages. Steps should be taken to remove it.

Question 8. No.

Question 9. If the mineral rights remain undisturbed the Government should regulate terms and conditions of lease but other powers of the lessors should not be restricted.

Question 10. In the event of the state acquiring mineral rights private ownership in the working and disposal of coal should continue. Production, distribution and marketing should, however, be carried out through normal trade channel.

Question 18. Yes, we are in favour of complete regulation. It should not be based on wartime practice. Everything should be done on well thought-out plan on the advice of experts both commercial and technical. Yes, the results of proximate analysis should be necessary before rational distribution of different grades of coal for specific purposes.

Question 20. When coal seam is analysed and properly graded the question of subsequent checking does not arise.

Question 24. For the purpose of conservation of better class coal the railway freights for lower grade coal should be lower to encourage its use by several industries.

Question 29. Yes, free competition is desirable. But the minimum prices of different grades of coal should be fixed by the Statutory Body from time to time to ensure good wages to the labour.

Question 36. Only surplus coal of non-caking quality may be exported to foreign markets provided arrangements can be made for obtaining supplies of materials like graphite, petroleum, tin, rubber etc., in which India is deficient from such countries.

Question 38. By metallurgical coal we mean that type of coal which when subjected to high temperature carbonisation produces a coherent mass (coke) which on account of its special physical and chemical properties (ash%, sulphur%, phosphorus %, crushing strength, porosity, reactivity etc.) is eminently suitable for smelting operations i.e. in reduction of metals from their ores either in blast furnaces or in other types of furnaces. We have the following approximate figures available about the reserve of good quality metallurgical coal to a depth of 2000 feet.

Gondwana Coal .. 1500 million tons.

[See Proc. Nat. Inst. Sc. Ind., Vol. VI. p.327 (1940)]

Question 43. Practically nothing has been done in India in these directions. But the production of caking coal is much above the proposed increased requirements for India's metallurgical purposes. At present large proportion of caking coal is put to many purposes other than metallurgical use which we consider to be a wasteful process of utilisation of caking coal.

Question 45. Yes, India has huge iron ore deposits the exact amount of the reserves has not yet been accurately estimated. But we are quite confident that enormous quantity would be made available. The caking coal reserve that India has falls far too short in respect of smelting operations.

If the present rate of wastage of caking coal for non-smelting purposes continues then it is certain that within next 50 years India will have to import coke from other countries for smelting her iron ores or she will have to take to other costly methods of smelting. It is, therefore, absolutely necessary that caking coal should be restricted exclusively for metallurgical purposes.

Question 46. Yes, with immediate effect.

Question 48. The solution would be by state purchase.

Question 49. Yes, it is desirable for the state to own the coal properties but operation of coal extraction may be done by private parties.

Question 50. Coal whether caking or non-caking used for steam raising purposes is considered to be steam coal. Coal with low ash (upto 16%) and high calorific value (over 6500 calories) would be regarded as high grade.

The estimated reserve is approximately 5000 million tons within a depth of 2000 feet. (See Proc. Nat. Inst. Sc. Ind. Vol. VI, P. 326, 1940).

Question 51. Yes, there has been wasteful use in India of high grade coals. If the coals are of caking quality they should be restricted for the manufacture of hard coke suitable for smelting purposes. If the coals are of non-caking variety and contain high volatile (say above 25%) they should be considered to be of chemical grade

and should be submitted to carbonisation processes for the recovery of various chemicals. The non-coherent residue may be briquetted and use for domestic and other purposes.

Question 52. Yes, Statutory restriction should be imposed on such coal.

Question 53. Yes, because India is deficient in such high quality and high volatile chemical grade coals.

Question 55. Complete and compulsory stowing in all cases at the time of depillaring should be enforced.

Question 56. Vertical rotation of working should be insisted upon as far as practicable.

Question 57. Stowing should be adopted in all coal seams irrespective of quality for conservation and not for the purposes of safety only. Full assistance and other facilities should be offered.

Question 58. Yes, Government should undertake the work of supplying sand for stowing.

Yes, Government should acquire sand rights.

Question 60. As much coal as possible should be recovered from the locked up area.

Question 61. Yes, there is always economy and efficiency by the use of pulverised coal and colloidal fuel. There has been very little development in these directions. Few examples may be cited. Pulverised coalfiring in the cement rotary kilns; in the reverberatory furnace of Ghatsila, Hyderabad Electric Powers House boiler etc. So far we know there is no attempt to use colloidal fuel in India.

Yes, steps should be taken to introduce pulverised coal firing in all types of boiler furnaces including Railway locomotives so that low grade coals can be utilised with efficiency.

Question 62. We consider the proposal to be quite attractive and it would be very helpful in the matter of getting power for electrification of railways and for starting industries at several places.

For example it may be said that on account of availability of cheap power in certain places in South India several industries have sprung up during the last few years.

Question 63. The present method is nothing but crude and wasteful.

Establishment of low temperature carbonisation process with arrangement of recovery of by products should be encouraged so that good quality smokeless patent fuel for domestic use may be easily available.

Question 64. Yes, there is scope in India for coal and tar distillation industry as India is very much lacking petroleum resources. Moreover, in view of the future projects of proposed road construction and development there would be increased demand for road tar.

Question 67. There should be uniformity in the grants of prospecting licences and leases in every place whether in provinces or in neighbouring states. It is for having definite control over this aspect of the problem the mineral rights should vest only with the Central Government and not with the Provincial Governments.

Question 68. There should be uniformity of rates every where for different grades of coal.

Question 71. Size is not the only factor. All the factors relating to development of properties should be carefully studied in each and every case before any final decision is reached. Yes, by any one or more of the methods mentioned. The Society thinks that conservation should be the basic principle for guidance in all such matters.

Question 72. There are many untapped coal-fields which should be fully studied before the quantity and quality of the coal can be known such as Garo Hills, Mikir Hills, Khasi Hills in Assam, C. P., Palamau (Bihar), Darjeeling, Hills of Himalayas, Rajmahal Hills etc.

Question 73. Unification of all cesses in one and to be operated only by the Central Government.

Question 74. Yes, there should be one Central Statutory authority exercising all the functions of the existing bodies. It should include both technical and commercial experts.

Question 75. Yes, unification is necessary as it would prove advantageous.

ORAL EVIDENCE OF PROF. N. N. CHATTERJEE,
REPRESENTATIVE OF THE GEOLOGICAL, MINING
AND METALLURGICAL SOCIETY OF INDIA,
CALCUTTA.

Conservation by compulsory stowing (pneumatic or hydraulic) should be in respect of all classes of coal in order to save the maximum amount of coal underground. If stowing is not resorted to in the case of inferior coal, it will be lost and will not be available when the deposits of high grade are exhausted. With sand stowing, extraction could be increased from the present 50% to 75% or 80% or even 90%. Rotation of working should also be enforced, so that other coals are not damaged.

Non coking coals could be converted into coking coals by partial hydrogenation described in the literature issued by the Fuel Research Board, but it is not known how far this has been successful on a commercial scale. It is also not known if Dr. Fox's patent process has met with success.

Certain laboratory tests indicate that the sulphur in Assam coal could be reduced and within permissible sulphur limits it can be termed as good coking coal. The sulphur so extracted could be used for producing sulphuric acid. These

experiments give promise of successful commercial exploitation.

The Fuel Research Institute has started functioning only recently. A comprehensive survey of Indian coals to determine physical and chemical properties is essential so that there after low grade coals could be improved by suitable methods for better use. It was suggested long ago that Geological Survey of India should have two sections, one for dealing with minerals and the other for dealing with minerals and how to improve them by beneficiation or processing.

Subject to the condition that in abnormal times such as the present, a large measure of Government control is essential, especially over prices, it is probably desirable that there should be free competition in the coal industry. Minimum prices could be fixed on the basis of the quality of coal and cost of production—the price being reduced in the event of over-production. Alternatively, it may be sufficient if Government guarantees purchase of unsold coal at the minimum price fixed. There can be no objection to the fixing of a minimum wage for labour.

A good many chemicals can be produced out of high volatile coals, and it is desirable that such coals should be restricted for specific purposes and consumers should not be allowed — through legislation — to use them for all sorts of purpose. Similar action has been taken in the U.K. and in a publication issued by H. M.'s Research Department, it has been stated that with reference to metallurgical coal "early consideration will have to be given either to forbidding the use of these coals except for special purposes for which they are peculiarly adapted or to finding a means of making other types of coal suitable for coke manufacture".

Pulverised coal can be used in locomotives as any coal of any ash content can burn successfully in that condition—in some cases up to 52% ash coal has been used—and a number of successful experiments have been conducted in America on these lines. It is really the quality and not the quantity of the ash that is important. The following comment on experiments in America is of interest.

"Practically any dry fuel whether high or low in ash content or volatile matter can be burnt successfully in pulverised form. But the most suitable coal contains over 20% of volatile matter and is of not higher than medium coking power".

Further it is stated that "Powdered coal may run as high as 10% in sulphur and 35% in ash and still produce maximum steam heating capacity so that otherwise unsuitable and unsaleable or refuse grades of coal may be utilised." Practically all types of boiler, from power station water tube down to the small vertical heating boiler, have been fired successfully with pulverised coal.

Gasification of coal should be undertaken. But underground gasification has only been practised in Soviet Russia. It is easy to extract coal by sand-stowing and submit lower grade coals to gasification direct to produce cheap gaseous fuel.

Facilities in regard to technical mining education are inadequate in India. There are only two institutions in India, one at Dhanbad and another at Benares, but the equipment at the latter is not sufficient. Even at Dhanbad, the arrangements could be improved and more students admitted.

The Geological Survey of India should undertake the preliminary task of preparing a proper estimate of reserves and besides do more detailed prospecting work also. The present estimates of reserves given by the Geological Survey of India are not altogether reliable, as they are superficial and a more detailed report is necessary. A proper liaison between the Geological Survey of India and private geologists is desirable—at present the Geological Department does not make efforts to get in touch with private companies and individuals.

The main object at the moment before the country, in view of the depleted coal resources, is conservation, including maximum extraction of coal and proper utilisation and ways and means should be found to achieve these.

79. WRITTEN EVIDENCE SENT IN BY THE HARD COKE AND BYE-PRODUCTS PRODUCERS ASSOCIATION, CALCUTTA.

QUESTIONNAIRE II.

I am directed by my Committee to address you in connection with this questionnaire, in particular, questions Nos. 38 to 43 inclusive of Part III under caption "Conservation of High Grade Metallurgical Coal".

Question 38. We define metallurgical coal as coal which can, either by itself or by washing or by blending with other coals be used for the manufacture of Metallurgical Coke. The largest deposits of metallurgical coal in India are found in the Jherriah Coalfield; there are also substantial deposits in the Bokaro-Ramgarh and Giridih Coalfields although we understand that Giridih coalfield deposits are nearing exhaustion.

There are also deposits of coking coal in the Raneegunge Coal field, viz. Ramnagore and Laikdih seams; there are also seams of semi-coking coal in the Karanpura Coalfield.

Question 39. I attach hereto schedules giving details of the coals used by our Members in 1938 and the coals they are at present carbonising.

The change-over in the coals now being used is due to the fact that in 1938 our Members were able to purchase coal from whatever source they preferred, whereas at present they are compelled to take coal allotted to them by the coal Commissioner.

Question 40. I attach hereto schedules giving details of our members' consumption of coal in the years 1936—45. All the coal carbonised in the ovens was used for the manufacture of metallurgical coke.

Question 41. I leave the Iron & Steel Companies to answer.

Question 42. The approximate annual requirements of coking coal for Members' Coke Plants are 400,000 tons per annum but in this connection I have to advise you that there is likely to be an expansion of the coke oven Industry in this country.

The coke oven plants owned by members of this Association are now drawing to the end of their economic life and as a generalisation, they are unlikely to be in operation after 5 or 6 years.

You will be aware that the Government of India are erecting a large Fertiliser Plant at Sindri and the Water gas process they will use at gas process they will use at this plant will require some 15,000 tons of bye-product hard coke per annum—180,000 tons per annum.

The members of this Association have put forward tentative proposals to government that two new Batteries of bye-product ovens should be erected at Sindri to give a production of approximately 1,200 tons of coke per day, say 36,000

tons per month—430,000 tons per annum and assuming this project materialises, the requirements of metallurgical coal for these two new batteries will be in the region of 600,000 tons per annum. By the time these batteries are completed, estimated at 4–6 years, the existing batteries will cease production and therefore would not require the 400,000 tons of coal they are at present consuming.

I am further to point out that the Sindri Plant is only one of some 10 projected plants programmed over the next 15 years and if say, 5 of these plants used the water gas process, other coke ovens would have to be built which would consume say, a further 1½ to 2 million tons of metallurgical coal per annum.

Question 43. The requirements of metallurgical coal cannot be reduced but with blending and washing, a mixture of lower grade metallurgical coals should be blended with the superior coals. There has been no large Washing Plant erected in this country but experiments have been carried out on a small scale.

Question 39. (a):

Bararee	Lodna	Coals Used by Plants in 1938 Loyabad	Bhowra.
14, 14A, 15, 16, 13 seams and sometimes 12 and 11 seams from the East Indian Coal Co. Ltd.'s Collieries.	14, 14A, 15 seams from Turner Morrisons Lodna Colliery Co. (1920) Ltd.	West Gopalichuck Central Kirkend, North Burrakur's Standard, Surat and Worahs Khas Jharia, Bhagatdih 12, 13, 14, and 15 seams F. W. Heilgers 16, 16A seams (Bhagaband)	Bhowra Pootkee Slack from Eastern Coal Co. Ltd. 15 seams 12 % 14 " 34 % 11 " 53%

Question 39. (b):

Bararee	Coals now being used by plants Lodna	Loyabad	Bhowra.
Same as in 1938	12 seam New Standard, 14, 14A, 15 seams Jardine Skinner Bararee Colliery.	Birds Loyabad 11 seam, Loyabad 16, 16A seam. F. W. Heilgers Standard 14 seam Bhagaband 16 seam Bhulanbaree 11, 12, 13, seams.	15 seam 13% 14 " 52% 11 " 35% Bhowra & Pootkee dust.

Due to the Coal Control Scheme we do not have our own free choice of coals.

Question 40.—

Consumption of Coal for Coking purposes in 1936 to 1945.
Tons.

Year	Bararee	Lodna	Loyabad	Bhowra.
1936	106860	130168	119600	54040
1937	104097	126696	110800	57003
1938	103079	126061	118000	56574
1939	80081	79032	114700	47097
1940	82954	63784	106400	54953
1941	91354	64628	105100	53982
1942	96688	52793	78500	47602
1943	93123	58432	67400	53056
1944	89923	65001	74300	49179
1945	82633	62757	81900	51795

Question 41. (a):—

The following percentages of coal have been drawn by us from our Collieries:—

	Bararee	Lodna	Loyabad	Bhowra
1936	The Bararee Coke Co.	100%	28%	
1937	Ltd., as such do not	100%	50%	Bhowra Coke Co.
1938	own any collieries.	100%	31%	as such does not own any collieries.
1939		100%	55%	
1940		90%	47%	From Mackinnon Mackenzie &
1941		69%	83%	Co.'s Collieries.
1942		65%	71%	478628 tons
1943		65%	68%	from outside collieries.
1944		60%	98%	46653 tons.
1945		60%	100%	91.12%

Drawn from Bird & Co. F. W. Heilgers & Co. group of Collieries.

Question 41 (b) :

Total output of our Collieries in 1936—45 was as follows:—

Year	Bararee	Lodna	Loyabad	Bhowra
1936	The Bararee Coke Co. Ltd., as such do not own any collieries.	535900 tons	Available output of coking coals from our own collieries is shown in the statement below.	We (Bhowra Coke Co.) have no information of the output at Mackinnon Mackenzie & Co.'s Bhowra and Pootkee Collieries who have been supplying us dust coal for our requirements but as far as we are aware we have used all the suitable slack available Taking steam and Rubble. to form 2/3 of the output (leaving 1/3 for us) the output roughly should be 14,35,800 tons during the 10 years.
1937		698100 "		
1938		624200 "		
1939		511800 "		
1940		577300 "		
1941		546000 "		
1942		528300 "		
1943		520900 "		
1944		484000 "		
1945		434400 "	3(a)	

THE BIRD COKE & BYE-PRODUCTS PRODUCERS ASSOCIATION
Coking Coals—Available output.

Year	Loyabad	Katras	Mudidh	Standard	Borrea	Bhilan-bararee	Sendra
	Tons	Tons	Tons	Tons	Tons	Tons	Tons.
1936	82863	104950	118436	268608	177523	126412	92964
1937	104856	89689	112896	242866	137315	123960	66890
1938	104157	116889	91793	197306	147951	133088	97376
1939	186266	137021	110749	196846	163694	156518	99780
1940	285371	126315	116664	208609	162547	164358	118117
1941	332619	143998	114201	207124	201175	153828	139398
1942	279333	144298	119066	141424	164964	122295	90537
1943	285042	154329	103166	136755	158843	108456	68344
1944	298655	165901	251833	169447	150454	120755	73425
1945	284837	138665	305790	156634	108968	120170	70566

Burrakur (Bird & Co.)

F. W. Heilgers & Co.

Question 41. (c)

Disposal of balance of Coal output after supplying the Coke Plants :

Bararee	Lodna	Loyabad	Bhowra
We do not own any collieries	To Indian Iron & Steel Co. Ltd. The State Railways and used for shipment purposes.	Vast majority of coking coals Supplied to Tata Iron & Steel Co. Ltd. Indian Iron & Steel Co. Ltd.	Practically all steam and rubble from Mackinnon Mackenzie & Co.'s collieries as far as we know was supplied to British India Steam Co.'s ships.

Question 42.—

Annual requirements of our plants working to full capacity for the next five years.

Bararee	Lodna	Loyabad	Bhowra
90,000 to 1,00,000 tons.	1,20,000 tons per year.	1,32,000 tons per year without the extensions under consideration.	56,000 tons per year. Extensions under consideration. If they materialise requirement will be doubled.

ORAL EVIDENCE OF MR. F.W.A. CARPENTER AND MR. WILLIAM BEIMANN OF THE HARD COKE AND BYE-PRODUCTS PRODUCERS' ASSOCIATION, CALCUTTA.

Question.—Could you tell us briefly the purpose for which your Association was formed ?

Answer.—It was brought into being due to war conditions. There was a short supply of coke and the coke oven companies found the best way was to get together and pool with coal distribution as one unit. So we formed the Association in 1939 or 1940 and pooled all our coke. It is merely an association. There are no Articles of Association. It is more or less a gentlemen's agreement.

Question.—Do you think conditions which will prevail with the end of the war will still necessitate the functioning of this Association ?

Answer.—Definitely. We founded it with the idea of keeping it going.

Question.—In your reply to question 38, you have stated—

“We define metallurgical coal as coal which can either by itself or by washing or by blending with other coals, be used for the manufacture of metallurgical coke”.

Could you give us some idea as to what percentage of treated coal can be mixed with metallurgical coal as such in order to be able to give an efficient mixture for the coke ovens ?

Answer.—It all depends really on what the buyer imposes on us. The steel works, in the olden days, used to impose a maximum of about 20 per cent. The Burma Corporation who were our buyers of coke used to impose a specification of 17 per cent. ash. In other words, we produce coke to specifications.

Question.—If I were to tell you that the design of the existing blast furnaces in the two steel works in India would require for an efficient

operation a percentage of ash in the coke exceeding $22\frac{1}{2}$ per cent., what would you consider to be the maximum percentage of blend which can be used?

Answer.—Approximately 25 per cent. It would depend on our selection of coal. Suppose we took Bhulanbararee and Standard 14/15 Seams low ash, we can afford to take a higher ash in 11 seam. It is merely a question of arithmetic in calculating the ash in the coal.

Question.—Have you any comment on the statement made by Tatas that the maximum percentage of blend which would give them an optimum of $22\frac{1}{2}$ per cent. ash in the coke is about 11 per cent.?

Answer.—It is purely a matter of arithmetic and of selection of other coal. Take Bhulanbararee and Standard 13/14/15 seams and add the other coals and you get different percentages. It is merely a question of what you put in.

Question.—The assumption is that they are using 12:17 seam as the major part of the mixture in coke-ovens. Then to that if you add standard or Bhulanbararee will that increase the amount of Bhulanbararee and Standard to be used in order to arrive at $22\frac{1}{2}$ per cent.?

Answer.—No. It is purely the selection of coal. If you want to use as much of 11 seam as possible—we know the ash content in that—then you would select your percentage of superior grade coals to give the blend not exceeding the ash content required. In other words, if I add 50 per cent. of the best coking coal,—lowest ash—I can take a higher percentage of the inferior coal.

Question.—The steel works say, taking the best coal available in the country, the maximum economy which can be effected by blending will not exceed 11 per cent.

Answer.—It all depends on the mixture. There is also the possibility of mixing coking coal with non-coking type or semi-coking type and getting metallurgical coke.

Question.—Could you give us some details of the experiments you have conducted?

Answer.—Over the last 20 years we have done hundreds of experiments in our ovens.

Question.—And you have succeeded in producing metallurgical coal containing an ash content below $22\frac{1}{2}$ per cent.

Answer.—Before the war, Tatas never considered any coke containing over 20 per cent ash. So whatever experiments we conducted were with the object of getting a coke whose ash content would be below 20 per cent.

Question.—During war time, members of your Association were, I presume, compelled to use the coal which was allotted to them by the Coal Controller. Has this change caused any difficulties in the matter of operating the coke ovens?

Answer.—No; the result is that ash has gone up in the coke. It means only that you have to be a little more careful with the ovens.

Question.—You have stated in one of the enclosures rather as a conclusion that in order to make one ton of coke, you will need, 3,216 lbs. of coal. That is derived from your statement that you required 600,000 tons of coal in order to produce 430,000 tons of coke. Is it a precise estimate or a rough estimate, because Tatas have stated from their records that they need, 3,380 lbs. of coal in order to produce one ton of coal?

Answer.—I would not dispute the Tatas figure, because if they are using high volatile coal that amount may be necessary because some may go off in the form of gas.

Question.—I see from your enclosure 2 that since the year 1936 there has been a progressive decrease in the production of coal by your members. Would you explain that? What are the reasons?

Answer.—Primarily because we could not get the coal required to coke. The deterioration was most prominent in Lodna where we have still got one battery which is not running. Secondly, there is the state of the ovens.

Question.—Did the demand, more or less, continue on the same level as before the war for coke?

Answer.—Greater.

Question.—What the usual markets you supply?

Answer.—They are—

Engineering Works	40%
Railway & Ordnance Factories	10%
Cotton, Woollen and Jute Mills	15%
Paper, Cement and Chemical Works	10%
Sugar Mills	
(During the crushing season, October to April, every year)	10%
(During the off-season, May to Sept.)	3/5%
Miscellaneous (Food, Oil, electric supply, mints, aluminium works, potteries, rubber, etc.,)	15%

Question.—None of your coke went to the steel works?

Answer.—No.

Question.—Do these consumers require the same type of coke which the steel works require?

Answer.—There, again, it is a matter of opinion. If the coke contains high ash, the works will be worse off.

Question.—I would like to know whether the products of your coke ovens could at any time be suitable for blast furnaces of the steel works?

Answer.—Yes, all of them.

Question.—Apart from the coke required for foundries, is hard coke of the same type and variety, i.e., low ash, required by the other consumers of your coke?

Answer.—They prefer it. They probably could manage without it, but take the Ordnance Factories, and Railways, for example, they must have it.

Question.—You have stated that you have certain plans of expansion. You have also mentioned proposals you have submitted for the fertiliser plant at Sindri. Has final decision been taken in regard to the two batteries of ovens at Sindri?

Answer.—The last I heard a month ago from Brig. Cox was to the effect that the Government was not going to enter into a 20 year contract. That being the case, we are not interested in erecting a plant there.

Question.—If the fertiliser plant at Sindri goes ahead and establishes its own coke ovens, what would be the policy adopted by the members of your Association in respect of remodelling and renewing the present ovens and adding to the present output capacity?

Answer.—For six or seven years we were contemplating erecting one battery between the four of us which would be an economic unit. The plans are there. We have not decided the spot where the battery should be installed.

Question.—You are, I presume, aware that for the purpose of the Fertiliser Factory, they do not need the type of coke which is required for blast furnace purposes?

Answer.—It depends entirely on what they can utilise. There again the question is the higher ash the coke the less economic it is for them. They can use coke with 24 per cent. ash, but it is far more economical for them to take 16% ash if they can get it.

Question.—Your intentions in respect of the new plant which you would put up would more or less follow the standard practice of using low ash coal.

Answer.—Definitely, that is our market. We must produce coke which is suitable for engineering works in general.

Question.—Turning to the bye-products issue, I assume that in the new battery of ovens which you propose to set up you will attach to it all the latest bye-product plants for the recovery of gases?

Answer.—Definitely, yes. This battery we are contemplating erecting is exactly like the one at Indian Iron & Steel Company Works.

Question.—Have you comments on the suggestion that all coke ovens to be established in India in future whether by independent producers like Members of your Association or the steel works should be compelled to attach to it the usual bye-product recovery plants?

Answer.—You have a very delicate question there about Benzol.

Question.—It will follow as a corollary which the Government by compulsion may impose

in this respect that arrangements will have to be made for the utilisation of the bye-products.

Answer.—Then of course a Benzol plant is the obvious thing to instal.

Question.—You agree that in a large country like India there is room for the development of industries of various types and if the basis is coal, every step should be taken to see that coal utilised in raw form or processed form does yield the best products for the purpose of encouraging industries of this type.

Answer.—Definitely. There again it is a question of quantity and quality.

Question.—In view of the declared policy of Government to encourage heavy chemical and light chemical industries plus the demand for the various types of bye-products shown here, would you agree with me that the planned programme of development of the distillation industry, would be of help both to the producers of coke as well as the aspirants to the development of these industries?

Answer.—Definitely.

Question.—And if the coke producers are assured of a reasonable payment and progressively increasing market, you will fall into line and make your bye-product plant as efficient and up-to-date as possible?

Answer.—On general principles you should recover from your coal sufficient chemicals to pay for your coke—in other words it should cost you nothing. That is the real economics of the coke industry.

Question.—It is stated that Tatas throw water on their coal in order to increase the moisture. Quite a contrary opinion was expressed before us; rather a categorical statement was made that moisture was as important as ash and one per cent. of moisture could do as much good as 6 or 7% of ash. Have you any comments on that?

Answer.—I won't go that far. Tatas had practice of getting the moisture near 7%. Coal from Jharia normally comes with 2% of moisture. Some times in the monsoon it springs to the region of 9 or 10%. In that case they just put it in the oven. Sometimes it goes low and they have to pour water to increase the moisture.

Question.—What is your experience? Do your coke ovens produce metallurgical coal with 7% degree of moisture?

Answer.—Yes, definitely. In every coal you can find the most suitable moisture. There are graphs to that effect on German coals. Every coal has its corresponding moisture content which gives the best coal possible additional advantage. The figure for Indian coals is 5 to 9% depending on the coal.

80. WRITTEN EVIDENCE SENT IN BY THE MINING, GEOLOGICAL AND METALLURGICAL INSTITUTE OF INDIA.

Questionnaire I

Opinions differ in this Institute but the commonest one is that the coal export trade is necessary for the following reasons:—

Countries like Burma, Malaya and Ceylon who are India's best customers and sell her such important commodities as rice, rubber, graphite, etc. need Indian coal.

The knowledge that it is possible to get coal cargos in Calcutta brings tramp steamers there which are often loaded with Burma rice and other Indian necessities.

It helps Indian collieries to obtain a more uniform output as, though serious wagon shortages often make despatches to long distances difficult, it is always possible to send coal over the relatively short distance to Kidderpore.

Coking coals should not be exported.

Q. 3.—The Coal Grading Act undoubtedly encouraged foreign buyers to purchase graded Indian coals, and enabled the Indian Coal shippers to recapture much of the export trade which they lost in the early 1920's. It practically eliminated foreign coal from Indian ports.

Q. 5.—The existing monetary concession is not adequate but the actual concession needed can be decided after experience is gained.

Q. 7 & 8.—A good deal of difference of opinion exists on these questions. The whole problem needs careful investigation.

Q. 13.—Existing railway facilities are insufficient to handle the coal mined at present and will be hopelessly inadequate for the increased output expected in the next few years. The cause of this is partly that production from the larger collieries is less and that there are far more small outcrop workings than formerly. This greatly increases the difficulty of distributing and collecting wagons. More wagons particularly of the open type should be made available for Jharia and Raniganj coalfields. Every encouragement should be given to the design and construction of closed wagons capable of being filled by mechanical loaders.

Q. 15.—The principle of allotment of wagons should be based *pro rata* on output.

Q. 16.—To a negligible extent. The rebate at -/1/- per ton for installation of private weigh-bridges should be re-introduced. These should be installed on a permanent basis as this would avoid congestion and expedite despatches.

Q. 17.—Yes. The collection of freight should be a matter between the carrier and the consignee.

Q. 18.—Unsatisfactory as the railways delay too long in granting siding accommodation and when granted the loading space is insufficient and site unsuitable. Siding accommodation should be as near as possible to the production point.

Q. 19.—Yes. Margin of one ton overloading and 2 tons underloading should be restored.

Q. 20.—To a very limited extent.

Loading of covered wagons by mechanical means has not been a success. Experiments with new types of covered wagon specially designed to facilitate mechanical loading should be encouraged.

Q. 22.—Usefulness is doubtful but may be tried.

Q. 24.—The number of mechanical coal cutters when compared with hand picks is very small. This is due (1) to low wages before the war which made mechanical coal cutters uneconomic, (2) the difficulty of getting mechanical cutters during the war, (3) the absence of electrical power at many collieries.

It is considered very desirable that there should be an increasing use of mechanical cutters especially where new areas are being opened up.

Q. 25.—Experience shows that when rails are laid within short distances of the working faces production of coal per head increases.

Q. 26.—Not known. The trade should be consulted in shaping this policy.

Q. 31.—A considerable success has been attained in controlling the spread of fire and prevention of collapses of workings in the major coalfields. The chief obstacle to voluntary sand stowing is difficult in obtaining sand from the rivers during the monsoon period each year. It may be possible to store sand at the pit heads for use during these months.

To avoid the necessity of stowing in areas where stowing material is scarce thick seams should be quarried as far as possible along the outcrop.

The rough and ready rule in the Indian coal fields is that it is not economic to remove overburden if this is thicker than the seam exposed. Modern methods of removing overburden on a large scale in England have enabled overburdens ten times the thickness of the seam to be removed economically, so that it is probable that a great deal more overburden could be stripped in India than has been done in the past—possibly up to 4 times the thickness of the seam.

Quarry working is emphatically in the national interest, as it enables all the coal to be removed without loss and avoids the necessity of stowing.

Where the economical limit of depth has been worked out for the extraction of coal by quarrying, further advance to the dip must be made by underground working. If stowing is then necessary its cost might be transferred to the cost of removal of the overburden and the quarries extended to the dip in direct ratio to the saving on stowing. Assuming that it is decided to subsidize stowing then it can be equally claimed that quarrying beyond normal economic limits should receive a similar subsidy as it enables the whole of the marketable coal to be extracted.

Q. 33.—There have been considerable delays in the acquisition of surface rights over land for colliery purposes. As a result depillaring and opening of quarries have been hampered.

Q. 34.—Owing to the friable nature of Tertiary coals in Baluchistan, the Punjab, and Assam Briquetting is often desirable, but it has not proved economic so far. Briquetting of Gondwana coals is rarely necessary. Briquetting of the Bikaner and Cuddalore lignites should be investigated.

Q. 35.—A certain amount of research on froth floatation of Indian coals has been done by Randall and others without achieving any results of immediate commercial value. Dr. C. Forrester has also done fairly extensive float and sink tests at the Indian School of Mines on a laboratory scale.

Mr. J. Thomas, Messrs. Anderson Wright & Co.'s Chief Mining Engineer has made a special study of this subject over a long period. Tests on the gravity principle have been carried out, and the erection of the first washing plant in India is now contemplated by them in the Bokaro coalfield.

The significance of these results is that those high ash Coking coals which are amenable to washing can be cleaned and produce low ash coking coals (13 to 15% ash). The washed coal can then be used for blending with such inferior coking coals as cannot be worked economically.

The problem, however, is not simple; the possibility of washing a coal seam depends on the physical character of its constituents. A physical survey of each seam is, therefore, necessary before any decision can be reached on its washability.

Coal washing pays when the increased amount which can be realised for washed coal is more than the total cost of washing including capital outlay on plant and the cost of dealing with the impurities which are rejected.

Q. 36.—In view of the probable delay before the Indian Fuel Research Institute can become a going concern it is for consideration whether a physical and chemical survey of individual coal seams might not be undertaken in the near future by the Geological Survey of India helped by the Indian School of Mines, Dhanbad, and interested industrial concerns.

The coal and oil industries should be adequately represented on the board of the Fuel Research Institute.

Q. 37.—Opinions differ in this Institute as to the desirability of encouraging the benzol industry at the present time.

The present position, as shown in the attached valuable letter from Mr. B. Wilson Haigh, is an aftermath of war, when the recovery of benzol was artificially stimulated by the need of toluol for T.N.T. As a result the plant in India is now capable of a production greatly in excess of India's normal needs.

The coke oven plants which produce benzol are primarily concerned with producing coke for steel making. By leaving the benzol in the coke oven gas they effect a saving said to be many times the cost of producing an equal quantity of petrol. They make equally good coke, and used no more coal. On the other hand a few thousand tons more motor spirit would have to be imported if this benzol were burnt with the coke oven gas.

As has been proved during the war, benzol can be recovered from coke oven plants whenever necessary with little delay. There is no reason therefore why the Indian dyestuffs industry should ever be held up by a shortage of this raw material.

The oil industry object on principle to subsidies to other fuel industries, which they do not receive for the products of their own distillers.

There would seem therefore to be a case for Government to shut down redundant benzol plants rather than subsidise them. On the other hand the shutting down of plant now in existence which may be required for the Chemical industry in a few years time is a doubtful saving if by a small rebate of excise duty on motor fuel the continuity of working can be retained. It is thought therefore that it might be reasonable to grant minimum rebate necessary to keep the plant running if the firms concerned can show that such a subsidy is necessary to prevent their plant shutting down.

It is clear from Mr. Wilson Haigh's letter that the guaranteed preference of 8d a gallon granted in England on home-produced spirit was designed to encourage the recovery of oil from coal by one or other of the recognised methods and not especially to encourage the benzol industry which already existed. As the preference was granted at the instance of the Committee for Imperial Defence it may be assumed that the principal object in view was a strategic one. Whether such a reason exists for encouraging Indian benzol or not is for Government to decide.

Q. 38.—The existing facilities are adequate in the Jharia and Raniganj coalfields.

Q. 39.—Educational facilities in the coalfields are inadequate. More primary schools should be opened.

Q. 40.—Better education leading to a need for amenities of a kind which can be made available in the coalfields, but are unobtainable in the villages. Employment on all working days for all classes of workers. Where possible some land for cultivation.

LETTER FROM MR. B. WILSON HAIGH, DATED 22ND FEBRUARY 1946 (REFERRED TO IN REPLY TO Q. 37).

Benzol has been manufactured in India by the Baraees Coke Co. for nearly 25 years. It has also been manufactured at the State owned Coke Plant of the E.I. Rly. Co., for a somewhat shorter period.

In the earlier years it was mostly used for Government aeroplanes as a petrol-benzol mixture. When tetra ethyl lead came into use for raising the octane value of motor fuel, Government did not renew their contract and benzol became a drug on the market.

The cost of recovering benzol is several times that of producing petrol yet the same excise duty per gallon is charged on both, so because of this benzol could never be sold as a motor fuel to compete with petrol. Many representations were made but the Finance Minister would never agree to remit or reduce the duty, hence nobody would expend capital on an unprofitable venture.

At the outbreak of World War II Toluene for TNT was badly needed East of Suez. Bararee Coke Co. showed that toluene of the requisite purity could be made in India. Government profiting by this experience purchased and erected suitable plants at Tatas and Indian Iron and Steel and these two large plants are still in existence.

About 5 years ago the Central Excise granted the same facility to benzol manufacturers as they had previously done to petrol Companies to exempt from duty benzol used as 'Solvent oil' that is for manufacturing purposes, but not for motor fuel. The Provincial Government of Bihar also exempt solvent oil from Provincial Sales Tax but levy it when benzol or its homologues are sold as motor fuel.

The special encouragement needed to facilitate progress in the manufacture of benzol or any other hydrocarbon derived from coal is that neither Central Excise nor Provincial Excise or sales tax should be levied thereon.

If low temperature carbonisation comes to be practised in India or if the Fischer-Tropsch process is carried on or even if underground gasification of coal is practised, they may all result in the production of motor fuel which to stand any chance of being sold in competition with petrol would need to be exempt from excise duties.

This would bring it into line with the practice in Great Britain where no excise duty has ever been charged on benzol or oil from coal.

In 1938 the Committee of Imperial Defence, Sub-Committee on oil from Coal (Falmouth Committee) recommended a guaranteed preference on home produced spirit for 12 years from 1938 of not less than 5 d. per gallon (the amount of duty on imported spirit then in force).

This was for the purpose of encouraging as much as possible the production of motor fuels from coal and in my opinion the same practice should be followed in India.

When the dyestuffs industry develops in India there will be a good take-off for benzol and its homologues for that purpose, but other requirements of benzol for manufacturing purposes are small. Any surplus therefore should be permitted to be used duty free for motor transport especially so, if power alcohol is to be developed as motor fuel, because a benzol-alcohol-petrol blend

of motor fuel is best of all and overcomes the difficulty of carburettor water trouble which occur when petrol and alcohol alone are mixed and used. The composition of benzol-ethyl alcohol-petrol blends for use in ordinary cars lies normally within the limits.

Alcohol	.	.	.	10-25% by Volume
Benzol	.	.	.	0-40% „ „
Petrol	.	.	.	35-90% „ „

National Benzol Mixture is a standard motor fuel in Great Britain, much sought after because of its anti-knock properties and a similar mixture could be sold say in Asansol, Dhanbad, Jamshedpur and Calcutta to consume the benzol etc. now being recovered from Coke Ovens.

The benzol portion should be duty free so far as the manufacturer is concerned and its use should be encouraged.

Questionnaire II.

Q. 1.—Strongly in favour of the Central Government retaining power to regulate coal mines and the production and distribution of coal.

Q. 2.—Consider that there should be a central department of mines to deal with all questions of mines and minerals including cost under a separate member. There should be separate branches in this department dealing with (a) coal, (b) oil and (c) other minerals.

Q. 3 & 4.—Opinions differ.

Q. 5.—Most people consider it a healthy factor, but a few consider that the ability of prosperous industries to pay higher wages and prices than less prosperous ones may have an unsettling effect on the coal industry as a whole.

Q. 6.—During slump periods the Indian Government Railway Collieries have been used to depress unfairly the price of coal. During other periods they have saved India from coal shortages. Their production should be stabilized at a moderate but economic level, so that industrialists will be able to estimate with some certainty the probable coal requirements of the market. The complaint is also made that as Railway Collieries have not to sell their coal, they can afford to work their mines less economically than those run by private companies. This has an indirect influence on wages at the latter's collieries.

Q. 7.—Yes.

Fragmentation of holdings leading to great losses of barrier coal, making joint pumping and ventilation difficult, increasing the number of sidings and screens, and generally increasing costs and lowering outputs.

In difference to working methods leading to big losses of coal provided that salamis and royalties on large productions were received.

Prevention of amalgamations which are necessary for the efficient working of the deeper seams.

Q. 8.—No.

Q. 9.—Does not arise.

Q. 10.—The great majority consider the national advantage lies in private ownership in the working and disposal of coal with the exception of the few existing State-owned collieries. A few, however, favour State-ownership. At the present time control over production, distribution and marketing is considered necessary, but this is a question which requires re-examination when post-war difficulties have passed away.

Q. 11 & 12.—There is no information available to this Institute suggesting that either under-capitalisation or over-capitalisation is having a bad effect on the Indian coal industry.

Q. 13.—No information available.

Q. 14.—There seems general agreement that mechanization should be gradually increased.

Q. 15.—There is considerable difference of opinion on this question. Most people, however, consider that coal raising contractors tend to raise output and are essential. There is a tendency for such contractors to develop unsystematic mining methods, but with adequate supervision this can be checked.

Q. 16.—1. Encouragement to quarrying.

2. Use of oil on remote railways.

3. Increased production in outlying coalfields.

4. Increased use of mechanical coal mining machinery.

5. Introduction of 3 relays for coal cutters where possible.

6. Fuel economy measures at the consuming ends.

Q. 17.—There is a great deal of difference of opinion in the Institute, but all are agreed that some form of Government price control will be necessary for some years to come. Most members consider that ultimately the industry should be allowed to do its own marketing and distribution.

Q. 18.—There is a strong body in the Institute which considers that there is a case for the complete regulation of the use of different coals for different purposes. The more experienced miners, however, doubt the practicability of any such regulation. Much more work on grading of coal seams would be necessary before anything effective could be done.

Q. 19.—Regulation of use by railways is most desirable. Except for exceptional needs they should be induced over a period of say 10 years to convert their locomotives for burning low grade and locally mined coals.

Q. 20, 21 & 22.—No remarks.

Q. 23.—Not considered desirable.

Q. 24.—Opinions differ. Obviously a freight on high grade coal higher than that on low grade coal would tend to reduce high grade consumption

and increase low grade consumption which is very desirable. It is considered that washed coals, which were originally low grade, should be transported at the rate in force for low grade coals.

Q. 25, 26, 27 & 28.—No remarks.

Q. 29.—It is considered essential that Government should inform the industry on their policy as regards the State-owned collieries for 10 years ahead. The industry will then be in a position to plan its programme of production.

Q. 30 to 34.—No remarks.

Q. 38.—A metallurgical coal is any coal used for metallurgical purposes. Metallurgical coals can be roughly divided into two classes, (1) coking coals, and (2) gas coals.

Under present-day working conditions in India cooking coals should contain from 13 to 15% ash, be low in sulphur and phosphorous and should on carbonization under appropriate conditions produce a hard porous coke suitable of blast furnace work.

Gas coals must be sufficiently high in volatiles for the production of producer gas for industrial uses. They must also be low in sulphur.

Coals of the Barakar series in Bengal and Bihar usually produce a good hard coke, e.g., many of the seams of the Jharia and Giridih fields, the Kargali seam of E. Bokaro and Nos. 9 & 10 seams of W. Bokaro.

The Raniganj series of Bengal produces the best gas coal in India, but almost any Gondwana coal could be used if nothing better were available.

The exhaustion of the better class seams of Jharia calls for an examination of the possibilities of cleaning lower class coals by hand picking belts, and by washing. It might even be advisable to work certain thick seams in sections where one or more of these sections is amenable to washing and can be brought up to the standard of a metallurgical coal. The remaining sections which would not necessarily be very inferior for steam raising could be used for other purposes.

Q. 39, 40, 41 & 42.—No remarks.

Q. 43.—(a) *Blending* is carried on by the Steel Companies, where coals slightly inferior in coking qualities or higher in ash are blended with better and more expensive coking coals. This problem is being investigated by the Coal Blending Committee.

(b) *Washing*.—There are no washeries in this country at present, but investigations regarding this problem have been in progress for years by various individual firms. Much can be done to improve the quality of banded seams by washing. It may also be possible to improve more homogeneous dull coals by crushing them to dust and then washing either by the froth floatation process or on Pneumatic Tables. Costs of beneficiation on those lines are likely to be considerable, and it is unlikely that coal seams principally consisting of dull homogeneous coal (durain) can be cleaned economically at the present day.

Q. 44.—Utilisation of coal in the most economical manner can hardly be expected. There must always be some compromise where saving of fuel can only be attained by installation of expensive plant. Utilisation of coal by the steel works is probably economical having regard to other factors in the cost of steel production.

Research abroad is closely studied by the Steel Companies. A Government Research Department should, however, collect and investigate all information from abroad, and make it public. Private firms cannot be expected to spend large sums of money and then release the information obtained to their competitors.

While the Iron and Steel Works are probably using coking coal with reasonable economy, they cannot afford to be complacent about the situation. The known reserves of coal generally accepted as of coking quality are believed to be about 1,170 million tons of which 75% is likely to be recovered**. Extractable reserves are therefore probably about 900 million tons. At the present time two-thirds of the yearly production of about 10½ million tons is being used for non-metallurgical but very important work. If consumption continues at the present rate, reserves will be approaching exhaustion in 80 years.

While it may be possible to reduce the amount of coking coal used for non-metallurgical purposes, any savings from this source are likely to be counterbalanced by the growing consumption of the steel industry.

Q. 45.—The Institute is unanimous that some restriction on the use of metallurgical coal is necessary, but the means by which this is to be brought about and the degree of restriction are very controversial.

The reasons for restriction are that coking coal, which is at present essential for smelting iron, is not necessary for thermal purposes. Its property of caking is in fact a drawback to its use in furnaces, but in spite of this it happens in India that it is the most convenient coal for thermal purposes. High grade iron-ore in almost unlimited quantities can be easily and cheaply mined in India. It is, therefore, rightly thought that the limited reserves of coking coal should be kept for smelting iron, and not used for raising steam.

At present perhaps 3 million tons of coking coal are used yearly for hard coke whereas 7½ millions are used for thermal purposes. About 17 million tons of poorly coking high quality and lower grade coal are also used for thermal purposes. The principal users of coking coal for non-metallurgical purposes are railways and factories all over India. Obviously it would be disastrous suddenly to stop the use of 7½ million tons of good steam coal by railways and others at a time when there is already a great all round coal shortage.

Such a stoppage can only be gradual and must proceed *pari passu* with an increase in production of non-coking coal. Otherwise railways and factories will be partially shut down for want of coal.

The problem seems to be to find a way by which the use of coking coal can be confined to its proper metallurgical purpose with the minimum of injury to everyone concerned.

It is thought that if Government owned all coal mining rights except in the Indian States, they could refuse to grant new leases to mine coking coal except to Companies who would use it for metallurgical work.

Mines where work has already started on coking coal should be allowed to carry on till they are exhausted. Leases where work has not yet started might in some cases be exchanged for leases in non-coking coal areas. By the time existing mines of coking coal had been exhausted, railways and other large consumers of steam coal would have had time to adjust themselves to the use of lower grade coals. As coking coals become scarcer on the market, the difference in price between them and non-coking coals would widen. This would give a valuable incentive to washing low grade coals with the result that sufficient coal of high grade would always be available to consumers who cannot conveniently use anything else.

It is admitted that any arrangement on these lines would involve the consumption of some 80 million tons of precious reserves of coking coal in the next ten years, but half of this would be consumed by the Steel Companies and the remainder would have been used in other essential services. The amount used for non-metallurgical purposes would probably not greatly exceed the amount that would be irretrievably lost if the mines producing coking coal were stopped now suddenly, and the dislocation of industry would be avoided. Within ten years it should be possible to reserve most of the available coking coal for use in blast furnaces.

Q. 46.—yes. This would involve doubling the coal industry and using 1½ times the coking coal now being used, even if all coking coal were reserved for metallurgical purposes.

Q. 47 & 48.—See Q. 45.

Q. 49.—The State should own all mineral rights in coal. The mines may be operated in the manner most beneficial to the country.

Q. 50 to 53.—Many of the highest grades steam coals found in India are also coking coals. This is notably the case in the Jharia and Bokaro coal fields. It has been wasteful to use coking coals for steam raising. Such coals should be as far as possible used exclusively for making metallurgical coke. (See also reply to Q. 44). Where high grade steam coals are also coking coals, they should be treated as Metallurgical coals.

Q. 54.—This varies greatly in different areas, and depends on local conditions, value of the coal, etc. etc. In the past in many areas not

** This does not take into consideration reserves below a depth of 2000 feet which may ultimately be workable.

more than 50% of the coal has been recovered. Against this there is 100% recovery in some coal quarries. It is not thought that the over-all recovery of coal from mines in India exceeds 70% of the coal underground.

There has been a considerable improvement in recovery as the result of the compulsory use of large pillars in development and to some extent also as the result of sand stowing.

Q. 55.—The present regulations should prove adequate if rigidly enforced.

Q. 56.—*Rotation of workings.*—This should be controlled within reasonable limits, but compulsory working of poor coals should not be enforced unless they can fetch an economic price in the market. It is difficult to divorce questions of economics from safety. Control should therefore be by regulation with right of appeal to the Chief Inspector of Mines to relax the regulation if economics were against it.

Q. 57.—Yes. Assistance should be given to all kinds of coal to the extent directed by the Chief Inspector of Mines. Where there is likelihood of coal of Grade I being lost for all time under railway and road barriers owing to the withdrawal of pillars on either side thus destroying access to the barriers, stowing should be enforced and the barrier coal extracted. Coals inferior to Grade I hardly justify expansive stowing schemes unless safety demands it.

Q. 58.—Opinions differ.

Some consider that stowing should be assisted to the extent of delivery at the pit head by the Stowing Board of stowing material, and a grant given to cover 50% of the cost of stowing the material underground. Others think that it would be sufficient if Government delivered stowing material at central points for the use of groups of collieries.

Government should acquire sand rights so as to expedite delivery and distribution.

Q. 59.—Opinions differ. It would probably be difficult to arrange.

Q. 61.—Pulverised fuel is successfully used especially in cement works in India. The tendency appears to be for pulverised fuel to become less important as chain grate stokers, where the losses of fines are small, have now been perfected.

Q. 62.—This Institute would strongly support the construction of central power stations burning low grade coal in the coalfields to enable the electrification of the railway if possible up to Mogulserai and to supply electricity to Calcutta. It is considered that this would save a very large amount of metallurgical coal and would greatly help in reducing railway congestion in the coalfields area. It recognizes that the chances of getting the necessary equipment in the next ten years are small, and does not expect any import economy from electrification in the near future.

Q. 63.—This Institute is in favour of restricting the present wasteful method of making soft coke.

It is considered that about six central plants for recovery of gas and by-products would be necessary if the present output of soft coke is to be continued. It is understood that soft coke is used very largely as a household fuel and replaces to a considerable extent cakes of cow-dung whose proper use is not for fuel but as a manner to increase the fertility of the land. The coal used for the purpose is low grade and is available in practically unlimited quantities. Its use in lieu of cow-dung as a household fuel is therefore very desirable.

In view of the large sums of money being spent by the Central Government on artificial manures, it is thought to be not unreasonable to expect it to spend money on conservation of natural manure.

It is therefore suggested that, as central plants for the production of Soft Coke are not likely to be immediately remunerative, Government might reasonably be expected to experiment with a suitable plant for soft coke and by-product recovery at some locality near Asansol where the cleaned coal gas would find a ready market.

Probably some hard splint coal unfit for any other use will always be burnt in open pits to make inferior soft coal.

Q. 64.—Opinions differ, but some members are strongly in favour of such a development. All are agreed that extensive research should be carried out on this subject.

Q. 66.—In the past, many areas let out proved to be too small when deeper coals were worked, and companies have attempted to increase their 'holdings' by amalgamation. Their efforts have often been defeated by the conservative policy of the landlords who refused 'in stroke' or 'out stroke'. Each area therefore had to be worked as a separate lease. Sidings, screen, etc., have had to be multiplied. Thus small schemes generally very inefficient have been forced on the collieries. The barriers between leases have also been lost unnecessarily. Joint pumping and ventilation have been prevented. Costs have been raised and outputs lowered. If Government owned all the mineral rights this would automatically be corrected.

Q. 68.—Opinion differ. It is generally agreed that salami should be abolished. If Government owned the mineral rights there would be no trouble.

Q. 69.—Fragmentation in the past was due largely to the size of the sums claimed by the landlords as salami. Generally a holding smaller than 500 bighas is not advisable, but much depends on the shape of the holding. Many cases in the Jharia coalfield exist with holdings of 150 bighas or less. For instance, the Kurkend Mouza is split into 7 leases all very small except the two westerly ones. The proportion of barrier coal lost is extremely high. Subletting is another bad practice which leads to uneconomical working.

A clear definition of an uneconomical colliery is not simple. Generally speaking, areas of less than 500 bighas or outputs of less than 10,000 tons per month when the colliery is fully developed, may be considered uneconomic. Again, the quarrying of a thick seam over a small area might produce the required output, but the siting of the colliery may be such as to make economic working of coal in areas to the dip impossible.

Q. 70.—Yes. A large amount of coal is wasted.

Q. 74.—One central board.

Q. 75.—Yes.

81. WRITTEN EVIDENCE SENT IN BY THE INDIAN SCIENCE CONGRESS ASSOCIATION.

QUESTIONNAIRE I

Q. 1.—Yes :

The action taken by the Government by starting a Coal Mines Stowing Board is rather inadequate and further action is needed in the matter of widespread stowing and in the strict adherence of vertical rotation of working. Grading and working of the entire seam should be adopted and proper utilisation of coal should be encouraged for the achievement of conservation of all classes of coal.

Not very satisfactory : Yes, further action is necessary. The Stowing Act needs amendment so that all classes of coal may be conserved by compulsory stowing. The statutory authority proposed by 1937 Committee would be welcome but with certain modification of the personnel.

Q. 2.—Coal export trade to far eastern markets may be continued but export of only surplus non-caking coals may be allowed.

Q. 3.—Grading Certificate has good effect in marketing coal. Issue of grading certificate may be continued in the matter of export and inland trade.

Q. 7.—Re-grading of the entire coal seam is to be carried out at regular interval of time, as the quality of coal varies from place to place both along strike and dip and along vertical thickness. Coal Grading Board Act should be modified so that no partial mining or grading of a seam may be allowed.

Q. 8.—Yes. Compulsory.

Q. 22.—It is desirable to have some sort of seasonal and concessional rates to attract consumers particularly when the railways can assure sufficient supply of wagons.

Q. 24.—Certain amount of increased mechanisation is desirable both in the old as well as in new fields. For the successful application of mechanisation skilled labourers have to be trained. Complete mechanisation at the expense of ordinary labour is not desirable.

Q. 31.—Partial attempt has only been made in the matter of stowing. There should not be any option left for voluntary stowing. Com-

plete stowing process should be obligatory in all cases except in very thin seams. Unless there is legislation it is doubtful if all the facilities concerns will adopt voluntary stowing even if the facilities are available.

Q. 33.—It is desirable to obtain the necessary power to facilitate the acquisition of surface right over land for colliery purposes. Suitable legislation to this end is needed.

Q. 34.—Very little work on briquetting on coal has been done in India. Many encouraging results have been obtained in other countries in this direction. There appears to be enough scope in India for briquetting to utilise the friable and powdery coals, coke breeze, non-caking residue from coke ovens, lignitic coals, etc. in a better way. Blending and briquetting should go together to give satisfactory results in many places.

Q. 35.—Very little work has so far been done in India in this line. Quite recently some attempt has been started to carry out experiments on coal washing and the results appear to be encouraging but have not yet been considered to be far reaching in their effects and their commercial possibilities have also not yet been successfully proved. The cost of grinding and washing has to be taken into account as against the lowering of the ash content by removing certain amount of inorganic material.

It will be of some help to the Iron & Steel Industry if coke with lower ash content can be obtained from coal which has been successfully and economically put to washing process.

The washed coal can only be used in pulverised condition for which special design of boiler has to be made otherwise the washed coal will have to be briquetted before being used in the existing boilers in the country. Regarding economics of coal washing the cost of grinding, washing plant, washing process, drying, blending, briquetting, etc., has to be taken into account as against the reduction in the ash percentage and consequent increase in calorific value.

Q. 36.—Immediate attention should be given to the following aspect of coal research.—

- (A) Low temperature carbonisation with the recovery of various by-products and production of suitable smokeless fuel for domestic use.
- (B) Hydrogenation of various Indian non-caking coals for the manufacture of greater quantity of liquid hydrocarbons.
- (C) Partial hydrogenation for converting faintly caking or non-caking coals to better caking ones.
- (D) Pulverised coal firing of low grade coals of India.
- (E) Complete gasification of low grade coals.
- (F) Desulphurisation of high Tertiary coals of India.
- (G) Coal washing.
- (H) Coal briquetting etc.

Researches on the various topics of safety measures and methods of coal mining should also be started for the improvement of the technique of coal extraction. No serious attempt has so far been made in this direction.

Q. 37.—Benzol is being recovered at present in few coke ovens in India. There is enough scope in India for recovering Benzol from all the existing coke ovens. Moreover many other by-products like tar and tar products, ammonia, naphthalene, and various other chemicals should be recovered from all the coke ovens. No volatile matter should be allowed to escape in the atmosphere.

State should encourage the existing companies to recover Benzol and other important chemicals from coal in their coke plant and State should render them facilities in that direction.

State should also show encouragement to others who want to venture in this line of recovery of by-products and manufacture of chemicals from coal so that the by-products and chemical industry may expand successfully in this country.

Q. 39.—If this item refers to mining education then it may be said that the existing facilities are not sufficient and more comprehensive schemes of mining education of different standards should be spread amongst all sections of people engaged in coal extraction. Arrangements should be made for evening mining lectures together with demonstration at different centres of this country for imparting suitable mining education to miners and mining students.

Q. 40.—Arrangements should be made to start colonies at different places in the various coal-fields for the labourers to settle with some plots of land. Once the nucleus is formed at various centres it is expected to grow in course of time to give rise to settled mining communities. Arrangements should also be made for their sanitation, health, agricultural facilities, mining education etc. etc.

QUESTIONNAIRE II

Q. 1.—In order to have health development of mines and mineral properties the Central Government should enact suitable legislation to vest in itself the power to regulate mines and mineral properties and also to control the production coal.

Q. 2.—A separate department at the centre should be started to deal with all questions relating to minerals and mines including coal.

Q. 6.—Railway owned collieries have been found sometime to depress the coal market. However in many cases metallurgical and chemical grade coals have been raised from railway owned collieries thereby fast depleting the limited reserves of such coals.

Q. 6.—Yes, we agree that private ownership of mineral rights in Permanent Settled areas and uncontrolled grant of leases for working these properties have led to premature dissipa-

tion of country's mineral resources including coal. The most important disadvantage in this respect is that there is no proper control by the Central Government over proper working. To remove the difficulties the Central Government should acquire those mineral rights and have power to revise if necessary the defective provisions in existing leases.

Q. 8.—No.

Q. 9.—In case the mineral rights remain undisturbed the Government should not have definite control over the power to lease coal bearing lands but should frame suitable terms and conditions of lease for enforcement.

Q. 10.—In case the state acquires mineral rights there should always continue the private ownership in the working and disposal of coal. Production, distribution and marketing should be done according to the country's requirements in the usual way. But in case of emergency or abnormal conditions in the trade the Government should have some provision of control to save the situation and help the industry and trade. Above all the Government should always have a check in the matter of maximum extraction and proper utilisation.

Q. 11.—If the question refers to small collieries working with inadequate capital it may be said that in order to introduce with economy modern and up-to date mechanised equipments for better and improved working the true solution of the problem will not be in only obtaining sufficient capital but also by amalgamation of smaller adjacent properties so that they may form bigger and economic units for proper development. There may not be then much difficulty in procuring finances or raising funds for systematic development work.

Q. 15.—Yes, the coal raising contractors seem to be after having more output as the commission is based on the output. This sometimes leads to unsystematic mining.

Q. 17.—Yes, there should be started one Central Marketing Agency for proper handling of problems of coal marketing and distribution either by the Trade or by the Government. If run by the Trade there should be some provision for the Government to have a check on these affairs in case of abnormal conditions or emergency.

Q. 18.—Yes, there should be complete regulation in the matter of utilisation of different grades of coal for specific purposes. Regulation measures should be of improved and more comprehensive nature than those current in war time practice. These measures should be applicable to all the coalfields in India. Yes, the results of proximate analyses would be required for understanding the quality of the different grades of coal before any action can be taken in the matter of proper utilisation.

Q. 19.—If the coal seam has been properly analysed and graded from time to time it is expected that same coal would be despatched under proper supervision at different stages of extraction, loading in depots and despatch. A

the supervising authorities at different stages are responsible for their respective duties. It is only by checking the loaded coal that one can know if the correct coal has been despatched.

Question 21.—The size of coal for despatch will depend on the type of boiler and the design of the grate.

Question 24.—Yes, it is unsound. It is better to have lower railway freights for lower grade coals and this will give encouragement to several industries to use more of low grade coals.

Question 26.—No such concession should be allowed in the matter of railway freight as that will effect the smaller concerns.

Question 29.—Yes, free competition is desirable. But the minimum price of different grades of coal should be fixed by the Statutory body from time to time to ensure good wages to the labour.

Question 30.—All consumers should be treated equally.

Question 35.—In the interest of conservation of coal and in order to safeguard the industry it is necessary to levy cesses and taxes. In case it is found that the coal industry is under heavy taxation which would affect its growth it is suggested that relief can be obtained by nominal taxation of the whole population as coal is intimately connected with the major interests of the people of the country.

Question 36. It is doubtful if there would be heavy surplus of coal for export over and above the future increased demand for India's internal consumption. The surplus coal only of non-caking variety may be exported to Ceylon, Burma and for eastern markets in lieu of graphite petroleum, tin, rubber, etc. in which India is lacking from those countries.

Question 38.—By the metallurgical coal we mean that type of coal which by high temperature carbonisation process produces hard coke suitable for smelting operations. The quality of hard coke also varies within certain limits for special purposes. For example in case of Iron blast furnaces for extraction of iron low sulphur, low phosphorous, low ash, strong coke is required whereas for smelting sulphidic ores high sulphur coke may be utilised. The approximate figures available about the reserve of good quality metallurgical coal to a depth of 2000 feet is 1500 million tons of Gondwana coal.

(See Proc. Nat. Inst. of Sciences, Ind. Vol. VI, p. 327, 1940.)

Question 43.—Some amount of metallurgical coal may be saved by taking to suitable blending of caking and non-caking coals. Very little work in this line has proceeded in India to indicate effective results. By washing if successfully and economically carried out the quality of the metallurgical coal will be improved by removing certain amount of inorganic matter but with consequent increase in cost. Practically nothing has been done in India in this line to indicate commercial possibilities of this washing process. What little has been done is still only in experi-

mental stage. Practically there has been no saving of metallurgical coal by following these two processes when we find huge amount (11 million tons out of 15 million tons) of metallurgical coal is being wasted annually for use in other ordinary steam raising purposes for which non-caking coals would be quite suitable.

Question 45.—Yes, there is a strong case in India for restricting the use of metallurgical coal for iron and steel industry and other metallurgical works.

India has huge iron ore deposit, though the exact amount of the reserves have not yet been estimated. But it is a settled fact that the reserve is almost inexhaustible. Unless the present day wastage of caking coal is checked it is certain that in near future India will have to depend on other countries for metallurgical coke. It is therefore highly desirable that caking coal should be reserved exclusively for smelting operations and other metallurgical purposes. (Vide Appendix for Resolution adopted at Science Congress, Bangalore 1946).

Question 46.—Yes, with immediate effect.

Question 47.—Restriction should be enforced by suitable legislation. The owners of such coal properties on being asked may restrict their output according to demand of metallurgical coal, otherwise the problem would be solved by the state ownership of such coal properties.

Question 48.—The solution of the problem would be by state ownership of such coal properties.

Question 49.—Yes, it is desirable that state should own such coal properties but coal mining may be entrusted to private parties. The purpose of conservation can also be served if Statutory restriction of the mining use of such coal can be successfully introduced. But by this process the problem mentioned in the question No. 48 may again arise.

Question 50.—Coal whether caking or non-caking used for steam raising purposes is considered to be steam coal. Coal with low ash upto 16% and high calorific value (over 6500 cal) would be regarded as high grade. The reserve of coal with not more than 16 per cent ash is approximately 5000 million tons within a depth of 2000 ft.

(See Proc. Nat. Inst., Sc. Ind. Vol. VI, p. 326, 1940.)

Question 51.—Yes, there has been a wasteful use of high grade coal in this country. If the coals are of caking quality they should be exclusively used for metallurgical purposes. If the coals are of non-caking quality and contain high volatile (20 per cent and above) they should be used for recovery of by-products and chemicals either by low temperature or by high temperature carbonisation process. The non-coherent residue may be briquetted and used.

Question 52.—Yes, a case exists for restricting its use. Statutory restrictions of use should be imposed on such coal.

Question 53.—Yes, because India is deficient in such high quality coals. Manufacture of various chemicals from the volatile matter can be started. If these coals are simply used for raising steam there cannot be any growth of chemical industry dependent on coal reserves in future.

Question 55.—No, the existing regulations are not adequate. Complete and compulsory stowing in all cases at the time of depillaring should be enforced so that maximum extraction of coal may be effected.

Question 56.—Vertical rotation of working should be strictly adhered to.

Question 57.—Stowing process should be introduced in all coal seams irrespective of quality for the purpose of conservation as well as for safety. Full assistance and other facilities (supply of sand etc.) should be offered.

Question 58.—Yes, Government should deliver sand for stowing. Yes, Government should acquire sand rights. Empty wagons may be sent to the collieries loaded with sand and additional aerial ropeways would be needed to facilitate the work.

Question 59.—Yes, the lessors should share a portion in the cost of stowing.

Question 60.—As much coal as possible should be recovered from the locked up areas.

Question 61.—There has been very little development in India in the matter of burning coal in powdered state. There is enough scope in India for this. Steps should be taken to encourage powdered coal firing in the different types of boilers including locomotive boilers so that low grade coals may be used with economy and efficiency. Railway Board should make a serious move in importing or fitting up locomotives specially designed to burn pulverised coal. There has been practically no development in the matter of utilisation of colloidal fuel, and as India is deficient in her oil supplies it is doubtful if this method will be successful in India.

Examples :—

Powdered coal is being utilised in this country in the rotary kilns for the manufacture of Portland cement. Powdered coal is also used at Ghatsila in the reverberatory furnace for copper smelting. Powdered coal is used in the boiler furnace of the Hyderabad (Nizam) Electric Power House for generation of steam.

Question 62.—It is expected to be economical to start Power Stations in the coalfields to utilise coals particularly in pulverised state for generating cheap electricity for the purpose of electrification of railways upto certain distance and to supply cheap electrical energy for the establishment of various industries. The idea of supplying cheaper electric power to Calcutta is very attractive and if it works out at a cheaper rate then it is certain that a number of industries will grow round about Calcutta. For example it may be said that on account of availability of cheap electrical power in certain parts of South

India several industries have come up within the last few years.

Question 63.—The existing method is nothing but crude and wasteful when the higher grade coals are piled up for manufacturing soft coke or domestic use allowing the volatile matter to escape in the atmosphere. Steps should be taken to encourage proper methods of low temperature carbonisation process with the recovery of bye-products so that smokeless patent fuel of uniform quality would be available for domestic purposes. Such materials will have ready sale on account of their good qualities. It appears that absolutely low grade and stony coals which may have possibly no other use may be piled up for getting third class domestic coke having poor qualities. Such a low grade and cheap material will have sale on the market on account of the poverty of the mass.

Question 64.—Yes, there is scope in India for the development of chemical industries depending on the distillation of coal and its bye-products. India is lacking in petroleum and certain amount of liquid fuel may be obtained by distillation of coal as well as by hydrogasnation process.

Again in view of the proposed road development projects there would be increased demand for road tar which may be obtained from coal for tar distillation.

Question 67.—There should be uniformity in the grants of prospecting licence and mining lease for mineral properties whether located in different provinces or in the neighbouring states. In order to have proper control over these matters and uniformity in action necessary power should rest with the Central Government and not with the Provincial Governments.

Question 68.—Yes, the central Government should take power to revise if necessary the rates of royalty, terms of lease etc. so that uniform rates may be fixed and introduced in the different provinces.

Question 70.—Yes, it is undesirable because suitable plans for improvement and development projects cannot be introduced in such cases. By process of amalgamation the adjoining smaller holdings may become big and economic unit for undertaking comprehensive plans of development.

Question 71.—Size is not the only factor. Other factors relating to development of coal properties should also be taken into account before any decision can be made.

Yes, the existing fragmentation of colliery holding can be solved by adopting any one or more of the methods mentioned in this question. The primary object should always be to achieve maximum conservation of coal properties.

Question 72.—There are many practically untapped coalfields and unless more exploratory work is done definite and more accurate information regarding the quality and quantity of the coals can not be obtained.

Examples :—

Coalfields in Garo Hills, Khasi Hills, Mikir Hills, etc. in Assam ; Rajmahal Hills, Palamau District in Bihar, in C. P. in the foot hills of Himalayas etc. etc.

Question 73.—It is desirable to have unification of all cesses and taxes in one and to be always operated by the Central Government and not by the Provincial Government.

Question 74.—Yes, there should be one Central Statutory Body as Authority exercising the functions of all the existing bodies. It should include some technical and commercial experts.

Question 75.—Yes, it is desirable to have unification.

APPENDIX

THE RESOLUTION ADOPTED AT THE BANGALORE SCIENCE CONGRESS HELD IN JANUARY, 1946

“In view of the known shortage of metallurgical coal in India, this joint meeting of the Section of Engineering and Metallurgy, Geology, Geography and Chemistry of the Indian Science Congress Session 1946, recommends that active steps should be taken by the Government of India to conserve the coking coal resources of the country by preventing the use of coking coal for purposes other than metallurgical”.

82. WRITTEN EVIDENCE SENT IN BY THE INDIAN CHEMICAL MANUFACTURERS ASSOCIATION

QUESTIONNAIRE II

The Committee of the Association have directed me to address you in connection with the questionnaire (questionnaire 2) issued by the Indian Coal Fields Committee. The Committee have carefully considered various points in the questionnaire relating to the chemicals industry and have directed me to give their observations and comments as in the following paragraphs. The Committee trust that their views on problems pertaining to the chemical industry will be given careful consideration.

ADMINISTRATIVE

The Committee are of opinion that the coal industry should come under the purview of a separate department of the Central Government which would regulate production, prices, distribution etc. of coal on rational lines in consultation with the representatives of various trades having a direct interest in matters relating to coal.

STRUCTURAL ORGANISATION

On the question of Indian Government railways owning and operating their own collieries the Committee feel that this problem should be considered in relation to the most economic

use of coal as fuel, without depleting the limited resources of good quality metallurgical coal and steam coal. The Indian railways generally obtain the best quality coal for burning in the boilers of locomotives. This would act as a drain on the resources of high grade coal in the country. The Committee are, therefore, of opinion that the output of railway collieries should be put to the best use possible according to the nature of the coal. The Committee also feel that low grade coal should be used for burning in locomotives and necessary equipments should be fitted to the engines for consuming inferior grades of coal. Processed coal, that is coal from which valuable bye-products have been recovered, could also be used in locomotives and could thereby help the growth of chemical industry.

DISTRIBUTION

The most important problem of the coal consuming industries is the very inadequate provision of wagons for transporting coal to the consuming centres. It has resulted in serious handicaps to most of the industries including the chemical industry. The Committee feel that adequate measures should be taken to overcome the difficulties of shortage of wagons.

As regards the pooling of railway freights and fixing of uniform price for coal at various centres, the Committee feel that if any such measures is brought into force, it should be applicable not only to coal but to all fuels equally. This would ensure that industries located in one part of the country and depending on one form of fuel would not be placed at a disadvantage when compared to others at different places and using different fuels.

CONSERVATION

The Committee are in full agreement with the suggestion that high grade metallurgical coal should be employed only for essential purposes such as in the iron and steel and other metallurgical industries. The Committee would, however, point out in this connection that high grade coke is also an important raw material for some of the major synthetic chemical industries such as production of calcium carbide, acetylene and other chemicals. These industries have not so far been fully developed in this country. Restriction of consumption of high grade coal should not, therefore, have a deterrent effect on the establishment of key industries such as manufacture of acetylene, methanol and other synthetic chemicals which have their basis on the availability of cheap and high grade coke.

As regards the conservation of high grade steam coal, the observations of the Committee on the wasteful methods of using superior quality coal in locomotive boilers are pertinent to the question. The Committee are of opinion that railways as major consumers of coal could best assist in the conservation of high grade steam coal by resorting to lower grades of coal for burning in the boiler of locomotives. The Com

mittee strongly feel the necessity of producing cheap electric power in order to accelerate the industrialisation of the country. The burning of low grade coal near the mines would in the opinion of the Committee be an obvious method of generating the much needed electric power. This would not only save the unnecessary haulage involved in transporting such low grade coal to the consuming centres, but would also help the conservation problem in general and at the same time act as an incentive to further industrial growth.

The Committee have also to state in this connection that soft coke production on scientific lines should be encouraged with a view to utilise the low grade coals to the maximum extent. The Committee would particularly point out the wasteful methods of coking in open heaps at the pitmouth as done at various collieries. The Committee feel that the valuable volatile by-products of coal could best be recovered by conducting the coking operation at scheduled places instead of burning in open heaps as done at present in many places.

From the point of view of the chemical industry the development of the coal tar industry is of utmost importance. The Committee are greatly interested in the development of the tar distillation industry, which in its present state is not able to meet the full requirements of essential chemicals. The manufacture of various products like synthetic drugs, dyes, plastics rayon and many fine chemicals is dependent on a broad based development of the coal tar distillation industry. Complete recovery of by-products from the coke oven gases and coal tar produced at present would to a large extent meet India's requirements of some of the essential coal tar chemicals. In this connection it is to be stated that the practice of burning coal tar as an additional fuel in iron and steel works should be discontinued in view of the importance of recovery of valuable products from the tar. Investigations should also be undertaken to obtain larger quantities of coal tar and its by-products from Indian coal by initiating low-temperature-carbonisation and other advanced techniques adopted in foreign countries.

83. WRITTEN EVIDENCE SENT IN BY THE INDIGENOUS MANUFACTURERS' ASSOCIATION

QUESTIONNAIRE II

The Association views with interest the action of the Government of India in setting up the Indian Coalfield's Committee to review the recommendations of the previous committees as well as to investigate fresh problems facing the coal industry of India. As a representative organisation of manufacturers who are directly or indirectly more or less affected by the coal industry—one of the most important of Indian industries—the Association considers it necessary to ventilate its general views on the industry which we hope will cover only a few issues

raised in the questionnaire circulated by the Committee.

As early as in 1920 Mr. Teharane Rees, made some valuable recommendations mainly bearing on (a) nationalisation of coal (b) conservation (c) sandstowing of mines and (d) coal cess for the stabilisation of coal industry in India. The Enquiry Committees such as the Coal Grading Board of 1925, Borrow's Committee of 1937, etc. that had been subsequently appointed also submitted their reports urging useful legislation and regulation for improving the condition of coal industry. But so far we find that the Government actions taken thereon fall far short of the people's expectation and shorter still of the important solution that the grave problems facing the industry demand. We are therefore of opinion that nothing but the nationalisation of the Government will be helpful to its growth, expansion, and stabilisation which is essentially necessary in the interest of National economy and prosperity.

The views of the Association broadly refer to the following problems arising out of the questionnaire ;

- I. A central statutory authority (Part I—Q. 1 and 2).
- II. Labour and Production (Part II—13—15.)
- III. Transport and Distribution (Part II—17—28.)
- IV. Export policy (Part II—36)
- V. Conservation (Part III, IV and V.)

I. As to the question of a Central Statutory Authority, the Association is of opinion that there is an undoubted necessity for the establishment of an expert statutory authority with power to regulate mines and mineral development and to control production and distribution of coal. But it should be understood clearly that the working of the said Central Authority must not follow the principles followed by the Railway Board but must work with a greater national outlook which is possible only if that Board be composed of such members from among the Indian as have had experience of coal industry and have shown capacity in industrial, commercial or financial matters, applied science, administration and organisation works.

The Association thinks that the present structural organisation of the coal industry is quite unsatisfactory in as much as the proprietors and managing agents having monopoly industrial interest, the interest of the consuming public is ignored, and the growth of the industry is hampered.

A nationally minded expert central Authority cannot but be keen about improving mining methods of increase output and produce quality coals in the interest of national economy.

II. Labour problem is the greatest problem that confronts the coal industry. There can be no difference of opinion on the necessity for rationalisation though opinion may differ as to the form of rationalisation. Whether an all out efforts should be made to increase production or all available resources should be concen-

trated or arise as much superior grade coal as possible instead of frittering them away on mining poorer classes of coal is for the experts to decide ; but we are sure that we require coal and that grade of coal which consumer requires and it is no use raising coal that consumer does not want.

In the opinion of this Association the solution of labour by nationalisation seems to be too premature for India, for the Government administration has to become considerably more efficient before it takes upon itself the colossal task of managing such a complex problem of labour in the coal industry. A settled and contested labour force is of primary importance to stabilise coal industry and to improve its present output.

The apprehended deficit in production may be made up by introduction of improved mining methods as well as by according a square dealt to the mining labour.

III. As regards transport, distribution and marketing the Association thinks that a Central Marketing Agency for coal under Government aegis is desirable and feasible and suggests that there should be regional or zonal groupings under this Central Agency.

The Association considers that there should be complete regulation of different coals for different purposes but a complete analysis of Indian coal must be a condition precedent. In this connection the Association extends its support to the recommendations of the Coal Grading Board of 1925.

The distribution on zonal basis appears to be desirable in the reciprocal interest of the surplus and deficit zones. The freight at the same level at all centres is not justified and a uniform basis of rail freights on principal varieties of coal seems to be unsound.

The Central Marketing Agency should be responsible for ensuring that correct coal is despatched by a colliery.

IV. As to export policy arising out of the questionnaire the Association is of opinion that with the return of normal situation India will

naturally get export market in such countries as Egypt, Burma, Ceylon, Hongkong as in prewar times. While exports of quality coals to these places should not be withheld, no fresh market need be found out for in the present situation India will for years to come have no excess of coal output.

V. Regarding conservation of coal resources it may be definitely said that supplies of quality coals should be carefully conserved. India has considerable resources of lower grade coals which by application of modern methods may be fully utilised but our resources of first class coals being very limited, steps should be taken to avoid wastage of all kinds, whether in mining or in using. As regards avoidance of wastage in the process of mining it may be suggested that by adoption of mechanical process in raising and cutting coals as is being done in other countries not only labour will be saved and production increased but also valuable bye-products will be available for utilisation in different forms and for different purposes. As to the prevention of wastage, we suggest that legislative restrictions should be imposed on the use of metallurgical, high grade steam coal and coke. The steam coal consumed by Indian Railways, if submitted to modern scientific method before being so used, may save a valuable bye-product in the form of Ammonium-sulphate yielding 30—40 lakhs of tons a year. Mills and factories using coal as the principal power should be required to instal distillation factories which will help to recover a lot of distillates. India's yield of coke is limited and it is feared that unless a scientific study of fuel research is initiated timely the stock will be exhausted within 40-45 years. It may be pointed out that coal dust is not put to maximum use. Coal bricks made of coal dust mixed up with suitable binding materials may be used with advantage both for industrial and domestic purposes and may go a great length to supplement coke. Considering these together with other factors of various industrial and economical importance the Association thinks that adequate measures should be adopted to ensure conservation and proper utilisation of coals, in general and high grade coals, in particular.



Section X



LANDLORDS

84. WRITTEN EVIDENCE OF THE MANAGER, BURDWAN RAJ ESTATE

QUESTIONNAIRE I

1. (1) State Control over leases to prevent subdivision seems to be unnecessary as this Estate has not so far encountered any uneconomical fragmentation.

(2) Straightening of irregular boundaries by give and take method by Legislation is desirable to facilitate working as also to stop avoidable wastage of coal. This Estate has been encouraging this practice amongst its lessees as a rule.

7. Regrading of coal seam is necessary on the basis of seam as a whole and not of sections to prevent wastage and fire.

8. No grading of coal for internal market seems necessary.

33. *Summary acquisition of surface land for working the underground coal is essential in view of the fact that the mine owners have to face lots of difficulties and inconveniences in the matter of acquisition from the owners or occupiers of the surface. The commencement of underground working and development shall not be retarded if the surface lands can be acquired by a summary method.*

QUESTIONNAIRE II

7. It is not a fact that private ownership of mineral rights of permanently settled estate has led to dissipation of coal resources. In all the leases granted by this Estate adequate provisions are made to stop all avoidable loss of coal. The remedy lies not so much in the provisions of the contract as in the habit or disposition of the party who actually works the mines for it is not infrequently found that in spite of most stringent restrictions and heavy penalties for breach of conditions the mine owners do cause unwarranted loss or wastage of coal in the course of working mine. The mischief may perhaps be minimized to some extent by imposing statutory duties on the owners of collieries and regular inspection of the Mines Department.

8. Administration by the State on behalf of the owners will not surely solve the problem on the other hand it will lead to complications and conflicts of authorities.

9. No. It will be unnecessary interference with private ownership without any corresponding benefit.

10. Without disturbing private ownership State Control over production and/or distribution and marketing may be of some benefit.

59. No, because the lessors share of profits so far as this Estate is concerned is infinitesimally small in comparison to the profits of the lessee, so if the lessor is required to bear any portion of the cost of stowing over and above the income-tax which he has to pay on royalty income he

will not only make no profit but will lose a good deal by granting mining leases.

Stowing is necessary not merely for the purpose of consumption of coal but also to minimise the chance of surface subsidence if not to avoid the risk altogether. In my opinion imposition of cess on this account shall not be justified unless the Government adopts adequate measures for the purpose of helping the owners of collieries in the act of stowing.

65. So far about 45 new coal leases have been granted by this Estate from 1936 to 1945 all on royalty basis and mostly for a term of 999 years covering a total area of 44,400 bighas approx. There was no fragmentation in any case.

66. Omission of instroke and outstroke provision in leases has not to the knowledge of this Estate affected the working of any Seam. If in any case any lessee found any difficulty in working coal for the want of such a right, the right was conferred on him by a supplementary document.

Where the contract is silent on the point of instroke and outstroke the lessee has the right to work by instroke according to law. It is only the outstroke right that requires express provision of the contract.

68. There should not be any standard or maximum rates of royalty etc., as it is not at all practicable in view of the fact that conditions vary everywhere in respect to quality, transport, thickness of the seams gradient etc., as well as on the general principle of supply and demand. There is no reason why the Government should either regulate or abolish the levy of Selami as it distinctly interferes with right of private ownership. Owners should have the fullest right to dictate the price of their own properties and it is quite up to the purchasers or lessees either to accept the terms or refuse. It should be noticed in this connection that the lessees who trade on coal make profit in ten years than the owners can earn in one thousand years.

70. The existence of uneconomic colliery holding is not desirable in the National interest as it means loss of national assets.

71. Amalgamation of different leases will not be practicable as the terms and rates of royalties etc., are not uniform on the other hand it will give rise to many complications.

If however, two or more contiguous collieries are held by the same party under the same landlord at the same rates of royalty and under same terms and conditions they can be amalgamated but in such cases amalgamation has no meaning.

72. There may be such properties in the eastern portion of the Raniganj coal fields as we have recently discovered in one or two cases, which have since been leased out. The Geological plan, which so far we know is the only guiding imperfect the area situations and other particulars of the properties can not be ascertained.

Oral Evidence of Mr. D. D. Mukerjee, representing the Burdwan Raj Estate.

There have been two cases (*viz.*, the Nandi Colliery and the Bengal Coal Company) in which mine-owners have caused loss of coal owing to bad working but no steps were taken by the Raj in the matter. The mischief can be minimised only by imposing statutory duties on owners of collieries and regular inspection by Mines Department ; there is no effective remedy in the hands of the Raj as it has to resort to protracted litigation in a civil court. The Raj cannot ensure that the terms of a lease are properly carried out unless it is armed with statutory powers to enforce its decision when it is satisfied that there has been bad working or a breach of covenants. The technical provisions of the leases granted by the Raj are comprehensive enough in the matter of proper working.

Statutory control over the grant of leases is desirable but may not be workable in all cases as it will cause complications—the Burdwan Raj has as a result of certain settlements to pay shares of the Royalties to the Putnidars who enjoyed the right to minerals before 1910 and there are definite restrictions peculiar to the Burdwan Raj. A recent example is of interest. The Burdwan Raj recently gave a lease of 200 bighas but the Coal Commissioner directed that the lease hold may not be worked unless 150 bighas are added to the area. But there are Putnidars having a right in adjoining areas and the Burdwan Raj could not grant a lease of these areas without the consent of the Putnidars who have under a previous contract been given the first preference of lease.

There are three or four categories of Putnidars. In regard to one kind an agreement has been arrived at between the Putnidars and the Raj in which it is safeguarded that when the property is leased out for coal working, the royalty and salami should be distributed in certain proportions between the Zamindars and Putnidars. The leases are granted jointly by the Raj and the Putnidars. There have been cases of irregular boundaries and some have been straightened and other cases are under scrutiny. As regards fragmentation, the Raj has generally not granted any area less than 250 bighas and in the cases in which the areas are less, there were unavoidable reasons for leasing them out.

The leases are generally granted for 999 years but sometimes also for 99 years. It is agreed that 999 years is too long a period and there is no objection to the regulation of the period of leases or limiting the lease to a maximum of 10 square miles in the areas now being worked or in new areas.

Leases are granted in respect of known and unknown coal seams and other minerals are reserved to the Estate who recovers salami when these are leased out.

In case of sub-leases, the consent of the Raj is not unnecessarily withheld when the lessee is a limited company duly incorporated under the Indian Companies' Act, private parties are re-

quired to deposit a reasonable amount of security and to pay a mutation fee. In the old leases there is no provision regarding the consent of the landlord to sub-leasing. In some cases Bengal Coal Co., Ltd.) the main leases have been sub-leased and further sub-leased. The Raj's consent in such cases is necessary, so that it is aware of the parties concerned ; the declared object is not to stop fragmentation.

Salami is not an advance payment of royalty but it cannot be said what its exact nature is. There is serious objection to the discontinuance of salami which is decided at the discretion of the landlord, even if there is adjustment in the Royalty rates. Salami is free from taxation whereas the landlord will have to pay tax if this is included in the royalty and this is one of this objection.

As it is not desirable that a landlord shall wilfully withhold the grant of a lease because of unreasonably high salami and royalties, there is no objection to some sort of restriction being imposed on the owners in this connection.

Difficulties have been experienced in acquiring land for colliery purposes and some provision is necessary under which lessees can get surface rights summarily as the provisions of the Bengal Tenancy Act are not sufficient.

The Raj has had no occasion to apply for surface rights as it is a zamindari, surface rights having been leased out to Putnidars, who are now the landlords.

Written evidence sent in by the Manager, Panchakote Raj, Manbhum.

QUESTIONNAIRE I

Sir,

With reference to your letter No. 14 (1)/ICC/45, dated the 1st February 1946 forwarding certain printed questionnaire for answer so far as this estate is interested therein, I beg to state that the estate has leased out fairly extensive areas in Ranigunj coal-field and receives royalties payable under the coal mining leases. We should, therefore, support all measures securing the safety, and increasing the output, of the mines.

I should not, however, answer questions going to the actual mining operations and to matters such as Port and Railway facilities which affect the mining industry. I should, however, answer the question Nos. 7 and 33.

As to No. 7, the grading of seams and even sections of seams have led in our experience to the working being limited to sections of seams or to a particular seam leaving unworked the rest of seam or seams, and these are lost to the country and the royalty thereupon lost to the owner of the land.

As to question No. 33, Section 84 of the Bengal Tenancy Act is hardly of any use in acquiring any part of the surface to get to the coal. That

section is limited to the acquisition of a *holding* which means a rayati holding, and for purposes which, it may be contended, do not include coal-mining, as it is destructive of the holding and in a sense, of the estate. In point of fact, the surface is held more often by tenure-holders than by rayats, and the section does not apply to the acquisition of a tenure. I have never come across a case in which section 84 was availed of for such acquisition.

Where a proprietor has let out the surface reserving the minerals, he reserves, by implication, a right of way to the minerals. That right ought to enable him to secure the necessary surface but its extent will be a fruitful source of controversy. An amendment of the Land Acquisition Act permitting people holding mining leases, whether they are companies or not, to apply to Government for acquisition would be an effective measure, if the provision for immediate possession, pending proceedings to assess compensation, is put in force upon proof of urgency.

Oral evidence of Mr. S. K. Mitra representing the Panchakote Raj.

The provisions of section 84 of the Bengal Tenancy Act do not seem to have been availed of for purposes of acquisition of surface rights for coal mining operations. The provisions in Section 50 of the Chota Nagpur Tenancy Act pertaining to the acquisition of surface rights for mining purposes have been omitted from the Bengal Tenancy Act. The delays in the matter of acquiring surface rights could be put right through an amendment of section 17 of the Land Acquisition Act, so as to provide for immediate possession at the discretion of the District Collector (without the Provincial Government's prior sanction) pending proceedings.

2. Total coal bearing area in the Panchakote Raj is about 60,000 acres of which about two-thirds has been leased. Areas are generally leased in entire mouzas containing 15 to hundreds of bighas. Formerly, sometimes, some 10 to 15 mouzas were let out together whereas now they seldom exceed 5 or 6 mouzas together. Old tenants working coal in adjoining mouzas generally take leases straight way but in other cases, generally, prospecting licenses are granted before mining leases. There is a standard form of lease which is generally adopted in all cases subject, of course, to minor alterations to suit individual cases. Certain amendments have been made to this standard form from time to time. The head-lease can be sub-leased but there has been no case in which it has been further sub-leased. The coal leases granted are only for working coal; other minerals are reserved. The leases contain provisions restricting fragmentation and splitting up. The leases contain provisions requiring lessees to work mines in most skilful and workman-like methods according to the rules and regulations prevalent at the time or that would be promulgated in future, though there might not be specific reference to or mention of "Mines Act" in every lease. No litigation has been necessary with regard to inter-

pretation of the terms of leases though this course had to be adopted for realisation of arrears. Mutation fees are charged if the lessees sell their interest to other parties but this had not been demanded the case of adjustment of boundaries, as there have been no such adjustments.

3. The principal lease-holders of the Raj in the Ranigunj field are :—

Messrs. Yule & Co. (Bengal Coal Co. etc.), Messrs. Macneill & Co. (Equitable Coal Co. and Aldin Coal., etc.), Messrs. Shaw Wallace & Co., Messrs. Balmer Lawrie & Co., and Messrs. Mackinnon Mackenzie etc.

4. Leases were formerly given for 999 years or so, but the period is now generally limited to a smaller number of years. The smallest area leased out is 15 bighas but that is an exception. It is not the case that small areas are uneconomic; actually, safety and rate of extraction may be greater in these cases. No technical advice is obtained before leases are granted. This is not because the Raj might lose the benefit of the leases, but because such advice from mining engineers of repute is costly and was not often necessary as large lessees hold adjacent areas where they have laid out big mines. No inspection of the mines is undertaken by the Raj to ensure that mining operations are carried out on scientific lines, because it is assumed that the big companies, to whom the leases have been granted, will not work the mines in uneconomic or wasteful manner. No case of wasteful and unskilful working has come to notice lately, though a representative of the Raj did admit before the 1937 Committee that wasteful methods had been employed by lessees of the Raj. There is no objection to experts being engaged to check actual working and this could be provided for through legislation. Some restrictive provisions could also be included in the leases to guard against the adoption of wasteful methods or with a view to the conservation of metallurgical coal. So long as a steady and increased income from royalties is guaranteed, the Raj agrees to Government taking statutory powers for ensuring proper working, prohibit wasteful methods and imposing restrictions or prohibition in workings. The undiscovered and unworked minerals should not in future vest in the State. The Zamindar might have done nothing in the past by way of prospecting etc., to determine what his lands hold but the Raj is now contemplating and taking steps for prospecting and developing those unworked minerals.

5. Selami being the capital value of coal demised in addition to royalty is payable irrespective of the period of a lease, should not be discontinued. Royalty rates are fixed having regard to the selami paid but there is no fixed rate. But if royalty rates are suitably adjusted, there would be no objection to the abolition of selami provided the income to that extent be made free from Income-tax.

6. With regard to amalgamation of collieries, voluntary methods should be adopted but if this fails, as has been the case in other countries, compulsory amalgamation could be enforced.

7. The Raj does not now work any mine itself.

8. There have been a few cases in which the Raj, hardpressed for money, has mortgaged in advance its right of collecting royalty.

*Written evidence sent in by the Manager,
Nowagarh Raj Estate.*

QUESTION 33 (MISC. VIII.)

Section 50 of the Chotanagpur Tenancy Act (Act VI of 1908) so also the amended sec. 49 of the said Act provide for the easy acquisition of surface rights over land for colliery purposes.

No difficulty of any sort whatsoever have hitherto been experienced by any of the lessees or sub-lessees working mine lying within the jurisdiction of this estate.

The suggestions for amendment with a view to summary acquisition said to have been advanced. The suggestions seem to be one-sided ; presumably appear to have come direct from the colliery workers and following which even amendment be made with that effect and the local authorities or the colliery workers are vested with the power of summary acquisition of surface land especially where there are human habitations and standing crops—Highhandedness may result causing extreme hardships and sufferings to the tenants and labourers (Majdurs).

QUESTIONNAIRE II

Economics of the Coal Industry.

Answers to

Question No. 1.—No disadvantage of any kind appears to have resulted hitherto in this area of the coal field from the private ownership of rights in coal and as such we think that there will be no necessity of Government interference.

Question No. 8.—We do not consider that the Administration by State of coal bearing properties, will at all be necessary as it stands at present.

Question No. 9.—In leasing out coal bearing properties no inconvenience has been experienced as yet by the lessors or lessees. So any enactment of legislation authorising State control over the power to lease such properties will be superfluous.

V

Conservation generally.

Question No. 59.—Regard being had to the fact that superior landlords are entitled to only a very small amount of royalty in comparison to the value of coal received by the colliery owners and also the heavy taxation of diverse kinds they are subjected to the superior lessors under no circumstances be held liable or made to share in the cost of stowing.

VI

Mining leases and fragmentation.

Question No. 68.—As under the existing conditions no difficulty of any sort is said to have arisen Government is not to take the initiative to interfere as to the fixation of the rate of royalty and to the regulation or abolition of the levy of selami.

Question No. 71.—Being unable to penetrate into the underlying idea and the principles of the questions, we are at a loss to make any comment or give any cogent suggestions whatsoever.

Section XI

**Steel Works & Technical Men
Connected with steel works**

87. WRITTEN EVIDENCE OF MESSRS. THE
TATA IRON AND STEEL COMPANY, LIMITED.

Questionnaire I

General :—

Question 1 (a)

As far as conservation is concerned, the conditions still exist and in a greater degree. As a result of the previous enquiries, the tendency has been to enact legislation for the purpose of safety only and, in our opinion, this has resulted in greater coal wastage. Government evidently did not appreciate that all the recommendations put up were interconnected. For example, the enactment to provide statutory barriers without rationalising the collieries or eliminating small holdings resulted in a further grave loss of coal reserves. The tightening up of safety measures without enforcing general stowing schemes resulted in certain unstable coal areas being abandoned. Failure to enforce a sequence of coordinated extraction of the seams has resulted in the loss of valuable upper seams of coal. Failure to abolish sectional working has probably resulted in further damage to the coal reserves. Failure to implement all the recommendations contemporaneously leads us to the conclusion that Government was more concerned with safety than with the conservation of the country's resources and that they failed to appreciate that a still higher degree of safety could be obtained by the enforcement of measures which would conserve the coal seams. If conservative methods of operation involving a co-ordinated sequence of coal extraction was adopted with compulsory stowing where necessary, then this would be a "sine qua non" of safety. Special measures for safety arising out of previous recommendations have simply resulted in the avoidance of any risks and when a position becomes dangerous Labour is withdrawn and areas of coal abandoned. This would not arise were conservative measures made compulsory. Summarising our reply to this question, we would state :

that safety measures and conservative measures cannot be separated and that conditions dangerous to life and property still prevail.

Question 1 (b)

Government only touched the fringes of the problems and although the powers granted to the Mines Department may have resulted in a greater degree of safety, this has been accomplished at a continuation in the wasteful methods of operation. In our reply to (a) above, we have made it clear that a greater degree of safety could have been attained by the enforcement, on a more general scale, of compulsory stowing and co-ordinating the sequence of extraction of the various seams. The establishment of a Coal Mines Stowing Board has no doubt tended to reduce the dangers threatening the Coalfields at the time previous Committees made their enquiries but the measures taken so far have been merely tentative and have not resulted in the wholesale stowing operations contemplated as a result of the recommendations put up in the past. We are of the opinion that greater progress would have been achieved by the introduction of a statutory authority on the lines suggested by the 1937 Committee.

The assistance given by the Stowing Board has been very small and, as far as can be ascertained, the assistance is based on delivery of the stowing material at the pit mouth. The fact that little or no assistance is given either for capital expenditure for stowing equipment or for stowing the mines for conservation purposes has retarded or discouraged mine owners from installing plants. The amount of capital required for such plants has not been given due consideration by Government and only the largest and wealthiest concerns and those concerns who are principally interested in conservation have been able to undertake extensive stowing operations. Small colliery concerns are not able to provide the capital and at the same time stand the heavy revenue charges and unless powers are exercised for compulsory stowing on a much greater scale there is little hope of saving the balance of the reserves in certain collieries. A comprehensive scheme should be arranged for a supply grid from the river and this grid should be laid out in a strategic manner in order to supply adequate quantities of sand where this was necessary. Collieries should be grouped for this purpose and, in certain cases, these collieries should be amalgamated so that central stowing schemes can be arranged in the same manner as central power supply. The smaller collieries which are unable to provide capital for extensive aerial ropeways would then get their sand delivered by a central scheme. Our recommendations therefore are as follows :

(1) Control by Government of sand at the source of supply ;

(2) Compulsory stowing in all seams where a co-ordinated sequence of extraction cannot be arranged ;

(3) Compulsory stowing for conservation as well as for safety ;

(4) A greater degree of assistance for capital installations ;

(5) A greater degree of assistance on revenue account ;

(6) Rationalisation of the collieries in each strategic area and transport arranged on central supply lines ;

(7) Investigations of the possibility of utilising local supplies of material other than sand and which does not require extensive transport. The possibility of the utilisation of this material adjacent to collieries has been called attention to on previous occasions by Dr. Fox, Dr. Roy and Mr. Farquhar ;

(8) Attention is also called to the industrial developments on the Damodar river which are liable to interfere with supplies of stowing material to the collieries ;

(9) Unification of mining leases in a standard form in accordance with the necessities for efficient production and marketing of coal on a scientific basis ;

(10) Enforcement of all recommendations in a co-ordinated manner which were put up by previous Committees.

Grading and Exports. II.

Question 2

We are of opinion that metallurgical coking coal should not under any circumstances be exported. Even in respect of non-coking coals, the export should cease, during the immediate post-war period, as the reserves of such coal will be required for consumption in the country itself as its industrial activity is to increase ten-fold before the century closes.

Question 3

The action of the Grading Board resulted in the recovery of the export market but at the expense of the reserves of metallurgical grade coal. *Questions 4, 5 and 6.*

As our view is that export of coal should not be permitted, we are not answering these questions.

Question 7

The existing grading system must be abandoned and more scientific means adopted for de-ashing coal. This will permit seams to be worked as a whole and in a co-ordinated sequence. *Recommendations :*

Grading to be confined to seams as a whole but the marketing of the coal should be on a scientific basis and after provision has been made for de-ashing and sizing.

Question 8

It is just as essential for internal industries to obtain good quality coal. This cannot be done unless scientific marketing is made compulsory and coal sold on specification. In this connection, we quote a paragraph from an Article on page 862 of the "IRON AND COAL TRADERS REVIEW" of November 30th, dealing with Dorman Long's expansion scheme :

"The success of reconstruction in the iron and steel industry, of course, depends upon coal and coal of a specific quality. If that is denied, then any scheme, however, brilliantly conceived, can only at best give mediocre results. If the mines are to be nationalised, the Government has a prime duty to the iron and steel producers, who have every right to expect a continuity of the supplies which are required."

The early enquiries into the washing of Indian coals were conducted chiefly on the basis of "Forth-Flotation". The results were not particularly satisfactory. The conclusions arrived at indicated that the ash in Indian coals was largely inherent and that big reduction in ash could not be expected. This fallacy has now been exposed after coal washing has been retarded for over 20 years. It has been adequately proved that the ash in Indian coals is largely free in the form of shaly and clay bands and also in the form of rough grained high ash coal. With the Exhaustion of the better seams normally giving 12% to 15% ash, other seams are now being produced which have a larger proportion of these clay and shaly bands and rough grained coal. In order to get coal more or less equivalent to the seams which in the past could be relied on to give a 12% to 15% ash basis intensive

manual picking has been done and, in some cases, up to 25% or 30% of the run of mine production has been rejected. This manual separation however is most inefficient, expensive and un-reliable. No standards can be maintained and the quality of the coal fluctuates from day to day since it is dependent on the efficiency of the human elements. Nevertheless, the fact that these classes of coal can be reconditioned by manual efforts alone proves that mechanical means can do it with more regularity and efficiency and with guaranteed standards from day to day. Heavy Liquid Separation plants therefore have been experimented with and ample proof is now available that a standard quality of coal suitable for modern industrial requirements can be obtained. It cannot be expected that these plants will reduce the ash in Indian coals to the low basis of the coals used in England but they will at least eliminate the free ash contained in the shaly and clay bands and also discard the rough grained high ash coal. For special purposes and special processes where an exceptionally low ash coal is necessary, this no doubt will eventually be obtained through a further secondary process of washing by "Rheolaveur", "Pneumatic" or "Forth-Flotation" plants. The system of Heavy Liquid Separation however will at a moderate cost meet the general requirements of industry and where special processes are involved and are essential the higher cost for the secondary washing by the other types of plants will no doubt be met. *Recommendations :*

- (1) Preparation of coal for marketing in a scientific manner. This will include sizing and de-ashing by Heavy Liquid Separation plants ;
- (2) Allocation of the different grades of coal from these plants according to the requirements of the various industries ;
- (3) This should be made compulsory under financial guarantees ;
- (4) It should be obligatory on the Railways to supply the necessary type of wagons to enable such plants to be put into operation.

Question 9

As we are not exporters of Indian coal and are opposed to further exports, we have no comments to make.

Part Facilities. III.

Questions 10, 11 & 12.—

We can only make general comments. The conditions of handling coal at the respective ports are primitive, expensive and wasteful. The first coal handling plant for export and bunkering, we understand, is being in process of installation at the Calcutta Docks. Installations of this sort are necessary for quick handling of cargoes and to prevent wastage through breaking of the coal. In order to meet foreign competition not only are these coal handling plants at the Docks essential but the coal should be screened before leaving the collieries and

delivered on specification. Recommendations :

(1) All main ports should be adequately equipped to handle coal in an efficient manner without wastage ;

(2) Wagons for this traffic should be designed in such a manner that they can be discharged and loaded by mechanical means.

Railway Facilities IV.

Question 13

From the periodic fluctuations experienced in the past, it would appear that at certain seasons of the year the Railways are able to deal with the coal traffic and that at other seasons of the year they are unable to deal with full demands. Agriculture is seasonal and heavy traffic movements for food and grains reach peak proportions at certain times. During these peak periods in the agricultural industry, other industries have to suffer and the coal industry is automatically converted into a seasonal industry too. These troubles are exaggerated by the labour conditions in the coal industry as well, due to fluctuations of labour attendance at different seasons. Maximum labour attendance at the collieries coincides with the maximum traffic movement in connection with food grains so that when production of coal is at a peak, traffic facilities for the industries are at a minimum. This does not encourage the maximum production of coal nor does it encourage large capital expenditure on coal handling plants where coal has to be loaded in a special type of truck or coal has to be stacked when no trucks are available at all. Railways complain about the fluctuations in production and collieries complain about the fluctuation in wagon supplies, with the result that a vicious circle has been created. Remedies can only be found by mutual consent and co-ordination. Recommendations :

(1) Creation of stable labour forces to maintain steady production in all periods of the year ;

(2) Further mechanisation of the mines to ensure that these steady productions can be maintained ;

(3) Provision of special trucks suitable for coal traffic which should not be diverted for purposes other than coal traffic.

Question 14

The recommendations for a ten-hour system of supplying wagons were probably on account of the necessity to obtain a quick turn-round of wagons and also, in some cases, due to the limited capacity of sidings to cope with full rake loading. If there has been any failure to implement the recommendations for ten hours loading, it has been due to shortage of engine power. The remedies are as follows :

(1) Adequate engine power ; (2) Adequate siding accommodation ; (3) Mechanical loading of full rakes.

Question 15

Previous to 1940 there were adequate supplies of coal for all purposes and special priorities were not necessary. The conditions regarding coal supplies prevailing since 1940 will continue to be adverse for a long time and if the special priority system of allotment is abandoned it will lead to grave abuses and chaos. Until adequate supplies of coal are being produced and the rail-

ways are in a position to handle the traffic effectively at all seasons, the existing controls should be continued. A higher degree of priority for wagon supplies should be given to basic and essential industries. Our recommendations are as follows :

(1) Maintenance of existing controls for distribution

(2) Higher degree of priority for certain basic and essential industries such as the metallurgical and chemical industries.

Question 16

The Tata Iron & Steel Co., has installed private weigh-bridges at Jamadoba, Digwadih and Malkera-Choitodih collieries to weigh all coal despatched. Another weigh-bridge is being installed at Sijua colliery for the same purpose. The encouragement given by the railways in the past and now withdrawn was originally to expedite traffic turn-round and to relieve the congestion at the central weigh-bridges at Bhojudih Bhaga and Mohuda. The necessity for increasing the turn-round of traffic exists in a still greater degree and the concession for the installation of private weigh-bridges should be renewed and continued permanently or until the B. N. Rly. is in a position to weigh coal more expeditiously at the central weigh-bridges. In fact, it is desirable to have a weigh-bridge for each large colliery producing more than 10,000 tons per month. This reduces the detentions to wagons en-route by the necessary adjustments being made at the collieries. The existing arrangement for weighment at central weigh-bridges results in a wastage of coal and traffic facilities whereas if the weighments are made at the collieries these detentions and wastage of coal are eliminated. Recommendations :

(1) Installation of weigh-bridges at all collieries or groups of collieries producing 10,000 tons per month ;

(2) Renewal and maintenance of rebate given by the B. N. Rly. on coal weighed on colliery private weigh-bridges ;

(3) Application of the same rebate to all private weigh-bridges installed since the rebate was discontinued for such installations.

Question 17

The Railways should be responsible for loss en-route. Grave complaints have been received from consumers on account of weight shortage at delivery end. This has been due to pilfering en-route. The liability for this is not clearly defined under the Railway Act. As public carriers however the Railways should be responsible for leakages and refunds made on coal shortages. Recommendations :

(1) Clarification of the Railway Act governing the transport of coal.

(2) Refund of freight and value of coal short delivered to consumers.

Question 18

Before 1940 negotiations for new sidings and existing siding extensions were unduly prolonged. With the establishment of controls since that time matters have become very much more difficult. The increase in the difficulties was

no doubt due to conditions created by the war, namely shortage of material and shortage of labour. These difficulties however should no longer apply and applications for new sidings and extensions should be more expeditiously dealt with.

Question 19

This has been dealt with in our replies to preceding questions and the remedies are :—

- (1) Installation of more weigh-bridges at the collieries to enable adjustments to be made before the wagons reach heavy traffic zones.
- (2) Introduction of standard wagons for coal traffic.
- (3) More frequent checking of wagon tares.
- (4) More attention to be given to the specific gravity of the various classes of coal despatched.

Question 20

As stated in our replies to previous questions, the installation of mechanical loading appliances has been discouraged on account of the seasonal inability of the Railways to supply the necessary quantity of wagons of the right type. The Tata Iron and Steel Co. have installed three large mechanical loading plants and have in course of installation two additional plants at their other collieries. Special consideration however has been given by the Railways to the Steel Co.'s traffic and we have not suffered to the same extent as other collieries where mechanical loading plants have also been installed. Periodically our collieries have to suffer inconvenience, particularly during recent years. With co-operation however we have been able to carry on without serious difficulties. The limited extent of the Railways to guarantee the right type of truck is a serious factor when considering further mechanical loading installations. If rationalisation of production and distribution has to be effected, the right kind of truck will have to be adopted for coal traffic on a general scale. The question of de-ashing and grading cannot be affected unless Railways afford these facilities. We do not know of any adaptation of a covered wagon for coal traffic. Recommendations :

Provision of special wagons suitable for coal handling plants on an adequate scale.

For industries remote from any coalfield, due consideration should be given levelling up the incidence of the cost of freight on the production of the finished material. It is recognised that where coal is despatched from collieries in rakes the incidence on traffic costs must be considerably reduced and this should receive special consideration. The question comments on the competitive disadvantage with another colliery producing the same quality of coal where higher freight rates prevail. This has probably been one of the chief factors in the reckless exploitation which has been done during the past two or three decades. Such collieries under a competitive disadvantage with ones nearer ports or consuming markets have been compelled to adopt the cheapest means of

production with consequent adverse results to the state of the collieries and danger to the reserves. Recommendation:

- (1) Special concessions to be given for rake loading—
- (2) Regional production and distribution.
- (3) Bunker coal to be supplied as far as possible from the collieries adjacent to the ports.
- (4) If it is necessary to despatch to the ports or to distant internal markets in competition with more adjacent coalfield freight rates should be levelled up or down and an average imposed.

Question 22

This proposal might as well apply to the Railways in connection with wagon, and loco repairs and maintenance where such operations can be made seasonal. The concession would apply during the season when colliery labour forces were at a minimum and would lead to the obnoxious method of stacking coal during peak production seasons for despatch during low production seasons. This would be a direct discouragement to improving coal grading and coal handling plants. If such an arrangement could be arrived at. Without the necessity of creating stocks of coal during peak production seasons, there might be some advantage but this could only be a temporary expedient and tend to perpetuate seasonal production in the industry. From the technical point of view and production of graded coal and supply to the consumer on a scientific specification, the only remedies are as follows :—

- (1) The Railways to provide traffic facilities for the maximum demands of the coal industry.
- (2) Further mechanisation of the mines and stabilisation of labour forces to ensure steady production at all seasons.

Raising costs

Question 23

Reply.

Tabulations of costs for the years specified are attached as Appendix I but to be treated as *confidential*. The principal items of increase are as follows :

- (a) Wages.
- (b) Application of dearness allowance on account of the war and attendance bonus.
- (c) Food concessions including free rice, cloth etc.
- (d) Increase in the cost of store materials with particular reference to ropes, pipes, etc.
- (e) Increase in the cost of non-productive work in recent years. This has been due to more intensive developments being carried out such as cutting faults and regrading roadways to improve transport facilities.

It should be noted that loss on foodstuffs, standard cloth, dearness allowance, attendance

bonus and increase in store cost in recent times have practically amounted to the total revenue cost in the years 1935-36 and 1939-40. A summarised statement is attached to the Appendix giving the incidence of these items on our total cost. Monthly cost statements are also attached for each of Tatas' Collieries for December 1935, 193 and 1945.

Question 21

(a) In Nos. 6 and 7 Pits Jamadoba, coal cutting is completely mechanised and 100% of the production is from coal cutting machines. In Digwadih colliery 60% of the total production is obtained from coal cutting machines. The other collieries of the Steel Co., are being gradually mechanised as equipment is received. The average production of machine cut coal from Tatas' Collieries is about 25% of the total.

(b) Mechanical coal cutters increase the production from the miners by 100% but the mining cost based on the actual number of miners and loaders employed is higher than for pick mining. If the costs are spread over all the operatives, the increased production brings down the average costs of coal loaded into wagons.

(c) It is the intention of the Steel Co., to utilise mechanical coal cutters as far as possible. This is limited by the conditions suitable for this class of mining. Such a point however has not been reached on account of inability to obtain delivery of new equipment. In some cases also auxiliaries such as coal drills have not been obtained in order to employ already installed machines to the fullest capacity.

(d) The obstacles have chiefly been non-delivery of coal drills and traffic facilities due to non-supply of haulages ordered.

(e) A general development in the direction of mechanised coal production by coal cutting machines is not practicable in those mines where the first operation has already been completed. In mines where the first stage of development has been carried out and gallery driving completed, the coal pillars may be too small to permit of mechanical coal cutters working in safety. There are exceptions however where systematic stowing operations would provide the conditions applicable for machine mining. The best results can only be obtained in virgin areas and few of these remain now in the Jharia coalfield. The only possible means for providing mechanical coal cutting on a large scale in the Jharia coalfield is to adopt sand-stowing methods. It is doubtful if this would lead to any advantage since the coal could be as readily obtained by pick mining where pillars are crushed and soft and the conditions easy for manual labour. It may not be generally realised that for new methods of production a mine has to be developed right from the beginning to give the necessary conditions for production. These conditions cannot readily be created at this stage of exhaustion of the Jharia coalfield.

(f) Mechanical coal production can be achieved with the greatest benefits in virgin collieries and new coalfields. Such collieries and coalfields must be developed on totally different lines in order to make the best use of up-to-date appliances for coal production.

Question 25

Where mechanical mining has been adopted, it is essential for rails to be laid right up to the producing faces. It is not only a question of extension of tracks but many other things have to be taken into consideration if the best results have to be achieved from mechanical coal cutters. A proper organisation must be created to co-ordinate all links in the chain of operations such as proper sequence of shifts for cutting, blasting and loading, proper layout and maintenance of the coal cutting sections, prompt supply of explosives and materials, efficient maintenance of the coal cutting machines and drills, adequate traffic control and maintenance of mine cars in abundant supply. It would appear that the degree of perfection in the above respects leaves a great deal to be desired.

Railway coal requirements VI

No comments.

Stowing VII

Question 31

We have already commented on this in our replies to the two preliminary items of the questionnaire and have given our recommendations. The obstacles which have been encountered have been partially explained in these replies.

The powers of the Coal Mines Stowing Board have never been clearly defined and this has resulted in considerable uncertainties as to what degree and under what conditions assistance can be given for voluntary stowing. It is unfortunate that such a term as "voluntary" was ever introduced. Either stowing is necessary or not necessary and schemes should be compulsory and have the full support of any established Stowing Control Board or Committee. The amount of capital required for transport and stowing has not been fully assessed except in a few cases where concerns have been in a financially strong position to overcome these difficulties in the interests of conservation. There has been a great deal of loose talk and speculation regarding the cost of stowing schemes without taking into consideration the local conditions of sand supply and the degree of exhaustion of the collieries concerned. Obviously capital and revenue costs will depend on these matters. Some collieries are near the river and others are remote. It has been generally assumed that sand is necessary for stowing without the full potentialities of supply of other material for this purpose. Local supplies of earth, gravel and sand near the collieries have not been taken into account. Schemes have been embarked on without the underground conditions being fully explored and subsequently where these schemes have been based on the supply of one or two tons of sand for one ton of coal extracted it has eventually been found that as high as six tons of sand are necessary for the production of one ton of coal on account of the already excessive extraction of coal which has taken place in bye-gone days. Due to the lack of knowledge of all these conditions, it is understandable that colliery proprietors are reluctant to embark on large stowing schemes without any definite guarantees from any authority. Owners will not embark on large capital expenditure when there is no guarantee of assistance continuing from one year to another.

A more settled policy is necessary to enable owners to forecast over long periods and the present arrangement for stowing assistance does not offer adequate guarantees. Recommendations:—

- (1) Reasonable guarantees for the supply of stowing material.
- (2) Long-term assurance of financial assistance.
- (3) Where stowing is necessary this should be compulsory and the term "voluntary" discarded.
- (4) Capital requirements and recurrent charges to be assessed on actual conditions prevailing on the surface and underground.
- (5) Before any stowing scheme is embarked on, it should be compulsory to produce an offset plan of the colliery workings. This offset survey of the colliery workings should be made under the control of Government Authority to ensure that a correct picture is produced of the actual conditions or, in other words to establish authentically the degree of exhaustion of the mine concerned and on which will depend whether it will be an economic proposition to do any stowing at all. Also, if it is an economic proposition the quantity of sand per ton of coal to be produced can be properly assessed.

Question 32

The Tata Iron and Steel Company have the following stowing schemes in hand:—

- (1) Digwadih colliery with sand from the Damodar river by ropeway.
- (2) Jamadoba colliery with sand from the Damodar river by ropeway.
- (3) Sijua colliery with supplies of local material.
- (4) Malkera colliery with supplies of local material. Additional schemes are being considered.

Costs may be considered from two points of view, namely, from the point of view of the actual coal produced from the area in which stowing is being done and from the point of view of the cost of stowing spread over all production from the mine. To base costs on the total production of the mine does not give a true picture of the cost. In some mines, coal is being produced from development areas where no stowing is being done and if the cost is spread over the whole of the production this conceals the true incidence of cost. Where the development stage of extraction has been completed as in the case of many collieries with the thick seams, stowing will be necessary for every ton of coal produced and the costs will be high in this case since there will be no additional production from areas without stowing to bring down the average cost. To get at the proper cost therefore it is essential to base it on the degree of extraction which has already taken place. This information can only be obtained by basing the cost on the actual coal produced against the tonnage of material stored. Details of cost at the respective collieries of the Tata Iron and Steel Company are given in Appendix II and a Chart has been produced on this basis showing what the costs would be under any degree of extraction.

Miscellaneous.

Question 33

VIII

Land acquisition has been becoming more difficult. Not only have values been greatly enhanced above the scheduled rates in recent years but the delays in dealing with application have also greatly increased. A statement is submitted as Appendix III showing these increases in values and the delays encountered. These increased values and particularly the delays encountered gravely hamper colliery developments. There seems to be no consistency in assessing values in the same province and in recent times arbitrary valuations are being enforced in the coalfields which are not in accordance with the scheduled rates.

Question 34

As far as we know, the only briquetting equipment which was installed was at Margarita colliery in Assam under the Managing Agency of Messrs. Shaw Wallace & Co. For some reason or other this was discarded. It is not clear if the briquetting of slack coal would be of any beneficial effect since the demand for this class of fuel is now as great as for steam coal. Experience would seem to indicate the lack of an efficient carbonaceous binder which would not add to the ash of the finished product but would improve the quality of the coal. Unless the slack used was susceptible to washing in order to reduce the ash before briquetting and a substitute can be found for a clay or lime binder, we can see no advantage in briquetting our slack coals. Coal briquettees are chiefly used for domestic purposes and could never compete with soft coke on the markets.

Question 35

Extensive research has been carried out by the Tata Iron and Steel Co. during the past 8 years or so which we consider has given satisfactory results over a limited range of seams. Further research may yield satisfactory results for other seams. A comprehensive scheme for coal washing research has also been inaugurated by the Board of Scientific and Industrial Research under the auspices of the Fuel Research Committee. Many samples have been tested with varying results and although these look promising for the upper seams of the Jharia series they do not appear to be too hopeful for the ones below No. 10. The significance of the results achieved so far in the upper seams of the Jharia field appears to indicate that these high and variable ash coals not suitable for making metallurgical coke can now be considerably reduced in ash and give that degree of uniformity and consistency which is required from day to day for Blast Furnace coke. Unfortunately the early experiments of Randall on "Forth-Flotation" discouraged further research on Indian coals and gave rise to the erroneous opinion that the ash was largely inherent and could not be separated. Possibilities of Heavy Liquid Separation had not been investigated until the metallurgical industry encountered adverse conditions through the increasing exhaustion of the normal seams on which it was founded. These were 12, 13, 14, 14A, 15 and 17 & 18 seams which would be depended on to give an a

percentage with consistency from day to day in the range of 12% to 15%. With the increasing exhaustion of these seams, others had to be drawn on to supplement supplies, but the scale and clay bands and coarse grained coal did not permit that degree of consistency which was necessary. Intensive picking by manual labour may have improved the quality but the human element is not conducive to the regularity required. The fact remains that by picking by hand the quality can be improved and where this can be done by manual labour it can be more efficiently done by mechanical means and with a higher degree of consistency and regularity. In some places, as high as 25% to 30% of the coal is being rejected by manual picking. Good, bad and indifferent coal is being discarded by manual pickers whereas mechanical washing plants will separate these grades with a high degree of efficiency and provide consistent grades with the minimum loss. Several plants have been evolved to deal with coals which have the physical properties of Indian seams and Heavy Liquid Separation plants such as the "Chance" Sand Washer, Barvoys' Washer and the Tromp Washer are suitable for this purpose. These plants will not remove the inherent ash but they will at least eliminate the adverse constituents which permeate many of our seams. It is possible also that if the dust from these plants is subjected to a secondary washing process such as "Froth-Flotation", the "Rheolaveur" process or the "Pneumatic" process, a much lower ash percentage can be obtained which might be utilised for special processes such as the manufacture of carbide.

There is a prevailing impression amongst producers of coal that any seam found in the Jharia Coalfield is a coking coal and therefore should be suitable for making metallurgical coke. We enclose herewith as *Appendix IV, for the confidential information of the Committee, Report No. 79, dated the 12th February 1946, prepared by our Energy and Economy Department at Jamshedpur, showing the qualities essential in coking coal and the various coals that are used at Jamshedpur.

Recommendation.—With the dwindling reserves of good metallurgical coals and the need for increased production of iron and steel the potentialities of coal washing assume increasing importance. We recommend the immediate establishment of a physical and chemical survey of all India coals under the Board of Scientific and Industrial Research.

Question No. 36.—The need is to get Government to accelerate the construction of the Fuel Research Institute and equip it to deal with problems arising in the industry. It would appear that the progress of this scheme will depend on the Finance Department of Government and the progress made so far is not in accordance with the urgent problems which have to be solved. Recommendation :—

Inauguration of a physical and chemical survey of Indian coals.

Question No. 37.—As far as we know there are four Benzol Recovery Plants in the country at

the following places :—

1. The Steel Works of Messrs. Tata Iron & Steel Co. Ltd., Jamshedpur.
2. The Works of the Indian Iron and Steel Co. Ltd., Hirapur.
3. The Works of the Indian Iron & Steel Co. Ltd., Kulti, and
4. The Government Collieries at Giridih.

These plants produce between themselves about 1 lakh gallons of motor benzol per month. As these are the main coke producing concerns in the country, it is apparent that benzol is being recovered from all the metallurgical coke produced in the country and particularly as far as it relates to the Iron and Steel Industry.

It will be observed from the above that the benzol recovery plant already exist to deal with practically all benzol produced in the manufacture of metallurgical coke. In future should more coke ovens be installed for the manufacture of metallurgical coke, benzol recovery plant should be provided not only for the recovery of benzol alone but other products such as pure benzene, toluene, solvent naphtha, etc., which are so very important for the chemical industries.

Question No. 38.—Facilities at present seem to be adequate but ■ Safety Research Department should be inaugurated.

Question No. 39.—Educational facilities have been provided by the Tata Iron and Steel Co. at all their collieries. A more comprehensive scheme of compulsory elementary education should be inaugurated for coalfields' labour. The responsibilities for this should not be placed on private enterprise but should be the elementary responsibility of the Government.

Question No. 40.—The Indian miner has still his roots largely in agriculture and returns to the land periodically for cultivation and harvesting. Nevertheless, in the Jharia coalfield, the younger generations are becoming more attached to the industry and being alienated from the land. This process has not been sufficiently intensive to meet the increasing demands for production and this can only be met by more mechanization and improved conditions for labour. There are politicians who deprecate any measures to alienate the miners from the land but from the industrial point of view it is essential to create stable labour forces. This can only be done if elementary education is made compulsory, housing conditions improved, wages and remuneration made more attractive and general amenities provided. There must be a general uplift in the outlook of the miner to enable him to appreciate all those benefits and to increase his spending power. This not only should apply to the coalfields areas but to India in general so that the labourers from over-populated districts where they are subsisting on a low level of life will automatically migrate to industrial areas where more inducements are offered.

Details of Appendices:

II Stowing cost statement with chart.

III Delays in land acquisition and increased rates.

APPENDIX II

TATAS' COLLIERIES

AVERAGE STOWING COSTS FOR SIX MONTHS ENDED DECEMBER 1945

Colliery	Particulars	Cost per ton		
		Surface	Underground	Total
		Rs. a. p.	Rs. a. p.	Rs. a. p.
Jamadoba	On actual coal produced from stowing area.	0 14 10·13	0 3 7·87	1 2 6·0
	On total production	0 1 4·09	0 0 3·96	0 1 8·05
*Digwadih	On actual coal produced from stowing area.	0 10 4·48	1 8 10·79	2 3 3·27
	On total production	0 2 2·19	0 5 2·93	0 7 5·12
Sijua	On total production	0 0 10·36	0 0 3·06	0 1 1·42
Malkora-Choitodih	On total production	0 0 5·55	0 2 3·07	0 2 8·62

*The cost at Digwadih for the particular period or which costs are calculated was adversely affected on account of heavy replacements of stowing pipes. The average costs over a long period are truly represented in the graph attached. This graph gives the cost per ton of sand stowed and also per ton of coal recovered when 100% stowing is necessary. It also shows the rapidly increasing cost per ton of coal as the percentage of initial extraction increases. This indicates that a limit of initial extraction must be fixed if stowing is to be an economic proposition. This is provided for under the new mining regulations but cannot improve the conditions created in the past.



APPENDIX III

DELAYS IN LAND ACQUISITION AND INCREASED RATES

Case No.	Date of filing application	Date of disposal	Period of delay		
			Yr.	Mth	Days
38/41	15th December 1941	12th January 1942	0	0	27
13/42	30th May 1942	1st July 1942	0	1	2
12/42	Do.	Do.	0	1	■
11/42	Do.	6th July 1942	0	1	7
10/42	Do.	27th July 1942	0	1	28
15/42	24th July 1942	7th September 1942	0	2	14
16/42	30th June 1942	11th August 1942	0	1	11
17/42	Do.	25th August 1942	0	1	25
18/42	Do.	Do.	0	1	25
19/42	Do.	Do.	0	1	25
21/42	5th August 1942	23rd November 1942	0	■	20
22/42	Do.	4th November 1942	0	3	1
23/42	13th September 1942	31st October 1942	0	1	18
2/41	2nd April 1941	23rd April 1941	0	0	21
3/41	2nd April 1941	Do.	0	0	21
4/41	Do.	Do.	0	0	21
5/41	Do.	Do.	0	0	21
6/41	Do.	Do.	0	0	21
31/42	12th February 1943	6th July 1943	0	4	23
32/42	Do.	Do.	0	4	23
3/44	29th April 1944	23rd October 1944	0	5	25
4/44	Do.	5th November 1944	0	6	11
5/44	20th April 1944	23rd October 1944	0	5	25
6/44	Do.	Do.	0	5	25
7/44	Do.	Do.	0	5	25
8/44	Do.	Do.	0	5	25
9/44	Do.	Do.	0	5	25
10/44	Do.	Do.	0	5	25
11/44	Do.	Do.	0	5	25
12/44	Do.	Do.	0	5	25
13/44	Do.	Do.	0	■	25
14/44	Do.	5th November 1944	0	6	11
15/44	Do.	23rd October 1944	0	5	25
18/44	15th May 1944	21st August 1944	0	3	7
19/44	Do.	26th June 1944	0	1	15
20/44	Do.	22nd December 1944	0	7	8
21/44	Do.	29th June 1944	0	1	15
22/44	Do.	22nd December 1944	0	7	8
24/44	Do.	Do.	0	7	8
38/44	18th July 1944	22nd January 1945	0	6	5
52/44	2nd October 1944	14th January 1945	0	3	13
51/44	Do.	16th November 1944	0	1	15
28/44	18th July 1944	14th January 1945	0	5	27
29/44	Do.	Do.	0	5	27
30/44	Do.	Do.	0	5	27
31/44	Do.	Do.	0	5	27
38/44	Do.	Do.	0	5	27
33/44	Do.	Do.	0	5	27
34/44	Do.	Do.	0	5	27
35/44	Do.	Do.	0	5	27
36/44	Do.	Do.	0	5	27
32/44	Do.	Do.	0	5	27
37/44	Do.	Do.	0	5	27
40/44	Do.	Do.	0	5	27
41/44	Do.	Do.	0	5	27
42/44	Do.	Do.	0	5	27
23/45	29th October 1945	Pending in court.			
24/45	Do.	Do.			
25/45	Do.	Do.			
26/45	21st December 1945	Do.			

LAND ACQUISITION RATES.

	Pre-war Rates.	Present Rates.
Bahal First Class Paddy (Dhani)	Rs. 350/- + 20%	Rs. 1251/-
Kanali Second Class II	Rs. 225/- "	Rs. 928/-
Baid Third Class III	Rs. 125/- "	Rs. 524/4/-
Patit	Rs. 17/- "	..
Gora I	Rs. 50/- "	Rs. 432/-
Gora II	Rs. 40/- "	Rs. 3198/-
Gora III	Rs. 25/- "	Rs. 216/-
Homestead land	Rs. 200/- "	..
Tank	As per first class	..

QUESTIONNAIRE II

CONSTITUTIONAL

Question No. 1.—Control of the Industry is nominally under the Central Government as far as safety, welfare etc. are concerned but certain matters come under the jurisdiction of the various Provincial Governments in which the respective coalfields occur. As far as the Central Government is concerned, the control is partly exercised by the Supply Department and partly by the Labour Department. With such division of responsibilities it cannot be expected that any degree of efficiency can be maintained. Since coal production has developed to the stage of being an important basic industry on which so many other national matters depend it can no longer be left for different provincial Governments to impose so many varied conditions. Nor can matters improve if two different Departments in Delhi continue to hold control. A great deal of the defects and abuses could not have been perpetuated if the industry had been under the control of a central statutory authority and one Department responsible for all matters. In other countries it has long been recognised that Fuel was a subject worthy of special consideration and important enough to warrant unity of administration under a Minister of Fuel or a Minister of Mines. All sub-departments which had any bearing on the question of fuels, such as prospecting, development and maintenance of mines, research, education and welfare etc. should come directly under one Department of the Central Government which should be adequately staffed by efficient men capable of administering the various branches of activities necessary for the progressive and efficient development of all sources of fuel and power whether this be coal, oil, water power or any other form of potential energy. Such large questions of education, welfare and housing will be problems peculiar to the Coal Industry and if several authorities have powers to deal with these separately nothing but confusion will result.

A further matter which will require increasing attention is that of research in connection with the better production and utilisation of all fuels. Co-ordination is necessary here and it is only the Central Government that can arrange for this. Provincial Governments are desperately anxious not only to control conditions of mining in the respective provinces but also to carry out schemes of research. As was to be expected, the experience so far gained has resulted in confusion and overlapping. It is therefore essential that the whole of the Coal Industry including all the matters referred to above should come within the jurisdiction of a Central Control. This control can only be exercised through a Department of Fuel presided over by a Minister of Mines or a Minister of Fuels or whatever designation may be given to him. He should at least have the status of a Minister in the Central Government. Under this Minister, there should be a Central Mining Board adequately representative of all the interests including the Central Government, the Coal Industry, consumers of coal and the

Provincial Government. The Provincial Governments would have to delegate their powers largely to this Ministry but they would be adequately represented on the Mining Board. The Mining Board with the sanction and approval of the Minister would form Committees to deal with the various matters such as welfare, health, production and distribution. In the formation of these Committees, all interests would be adequately represented but the membership would be overwhelmingly technical men with the highest qualifications and experience.

ECONOMICS OF THE COAL INDUSTRY

STRUCTURAL ORGANISATION OF THE INDUSTRY

Question No. 3.—This may be divided into three sub-heads namely :—

(a) *Managing Agency System.*—Looking to the present position of the coal industry, we consider that the Managing Agency system has been very helpful. The Managing Agents who have several collieries under their control are able to utilise the services of competent Colliery Managers and supervisors by dividing their salaries over several concerns and are thus able to reduce the overhead charges. They are also able to finance the collieries whenever such an occasion arises and are able to develop them on a scientific basis by taking a long range view of the matter. With the limitations imposed by the Companies Act on the powers of the Managing Agents in the matter of borrowings, lendings, etc., we consider that the Managing Agency system has been of considerable assistance to the industry and the system could be considered satisfactory.

(b) *Privately owned Collieries.*—The inherent weakness of privately owned collieries whose owners were not consumers was the inadequate amounts of capital at their command and also their failure to finance efficient technical supervision. In times of prosperity, they were reluctant to divert any substantial portion of their profits for this purpose. This resulted in their collieries being exploited in an inefficient manner and when times of adversity recurred they were completely unable to carry on production except at a loss or by resorting to further destructive methods of mining.

(c) *Collieries owned by Consumer Interests.*—It should be clear that large consumer concerns such as steelworks and railways could not depend on the vagaries or uncertainties of supply from Managing Agents and privately owned collieries. Too much capital was involved in the steel industries and in the railways to depend on such insecurity both for supply and for prices. The various producing interests had bound themselves together in associations to protect their interests and it was legitimate for large consuming interests to do likewise. Moreover, coal producers who had no interests in steel or transport had no responsibility or concern in their efficient operation and production. The organisation of their collieries did not permit of constant supply and they were generally covered under

their contracts from liability when supplies could not be made. It was essential for the steel industry and big transport concerns to secure themselves against these uncertainties and the only way in which this could be done was, as far as possible, to arrange for their minimum supplies to be ensured from collieries owned and operated under their own control. Not only did this cover them against lapses in delivery from market sources but it guaranteed them supplies in periods of adverse labour conditions at other collieries. Certain large consumers had already seen the dangers of uneconomic exploitation and the diversion of metallurgical grade coals for purposes other than metallurgical purposes and they estimated that the time would come very quickly when all such reserves of coal would be dissipated in an uneconomic manner. Their acquisition of properties and production of coal was not alone to give the balancing effect as stated above but was also designed to assure them of security for future supplies. In the absence of Government action at an early stage and the prospect that Government would not act until a dangerous situation had been created, the action of large consuming concerns has resulted in the reservation of resources which otherwise would have been already dissipated.

We consider that the acquisition and control of production by large consuming interests has been beneficial generally in the interests of the country. Although there have been defects in the Managing Agency system and also in the system of privately owned collieries, these can be remedied by stricter control of Government to ensure that the collieries are exploited in an economic manner and production and distribution made on a scientific basis.

Question No. 4.—The Managing Agency system as we have already explained in our reply to the previous question has not outlived its usefulness and with the necessary safeguards provided by the Indian Companies Act, it will be of considerable assistance to the industry.

Question No. 5.—This has also been partly dealt with under Question No. 3 above. Ownership by consuming interests tends to safety and conservation. Such consuming interests have to secure themselves over very long periods since their consuming interests have involved very large capital sums. All this has tended to developments of the collieries from a long term point of view with a consequent greater degree of safety and conservancy. It has also resulted in a more healthy factor from the point of view of prices, wages and general amenities. Not only can coal be produced at a much lower price at the pit head from such planned developments with central production units but it has increased the amenities of the labour forces involved and provides for a more generous proportion of the profits being distributed amongst the labour.

Question No. 6.—The fact that the Indian Government Railways acquired their own collieries and operate them has resulted in more security for transport. It has also resulted in the more efficient production of coal from centralised units on a large scale. It has prevented large areas of coal bearing lands from getting into the hands of small producers who had not the necessary

capital to efficiently equip the collieries and maintain production in a conservative manner. The chief asset however has been to ensure the requirements of transport at times when private market collieries were unable to meet their commitments.

OWNERSHIP AND MANAGEMENT

Question No. 7.—Government has already recognised the necessity for adopting standard leases in the action they have taken in connection with the grant of leases in Singhbhum where the question involved is the production of metalliferous minerals. Some of the Provincial Governments and the Independent States have also taken action along similar lines. In the Coal Industry there are no standard leases and these have all been granted from time to time by direct negotiation between the lessors and lessees. Most of the leases are negotiated in the earliest stages of the industry and both parties had insufficient knowledge of the production of minerals. This has resulted in original leases being framed more or less on general lines but varying in the framing of their clauses to a very large degree. The leases were also entered into at a time when only a certain grade of coal was considered to be valuable and other grades held no market value at all. This was in the very primitive days when the full value of the various grades of coal could not be assessed. The greatest omissions were the absence of "Instroke" and "Out-stroke" rights, the omission of any control over the sequence of exploitation of the various seams and which did not provide for a guaranteed sequence of extraction, the demarcation of boundaries on geological lines and the most important of all was the absence of any specific provision for the beneficiation of coal. Many of the leases were framed in such a manner that it might be interpreted that all the above conditions apply but the framing was so vague that it would probably result in a great deal of litigation to establish the rights of producers at this stage to produce coal and market it on a scientific basis. A standard mining lease is essential which will incorporate provisions covering all the above matters. Such a standard mining lease would be futile unless there was same control over royalty-receivers and it is question as to whether a Board or Committee under the Central Control should not be established for such a purpose. In this event, the expenses of the Board for supervision of the interests of royalty-receivers should be recovered from the royalty receipts. The only alternative to this is for the outright acquisition of all the royalties by Government on the basis of compensation to the royalty-receivers and a Supervisory Board established under the jurisdiction of the Minister of Fuel and his Mining Board. Administration expenses should be recovered and the balance of the revenue derived through this Board on account of the royalties should be allocated for purposes of safety and research in mines and distribution. This question of the acquisition of royalty rights by the State has been the subject of controversy for many decades in other countries. In recent years this has been implemented in England and has resulted in a much higher degree of efficiency and conservation

Question No. 8.—This is covered in the reply to the previous question and the outright acquisition of the mineral rights by Government would be the most satisfactory solution.

Question No. 9.—In the absence of a standard mining lease and mineral rights remaining undisturbed it is difficult to see how State control over the power to lease coal bearing lands can have any appreciable effect. The principal problem at present is in connection with the leases already made. If the State has to control the terms of new leases and not to have control over and modify or amend the older leases then this cannot eliminate the confusion already existing. The chief problem at the present time is in reference to Questions 7 and 8 above and any action taken by Government should not only provide for new leases on a scientific basis but should also deal with the leases granted in the past.

Question No. 10.—There cannot be any harm in the continuation of private ownership and we believe that this can be done more efficiently by private ownership for production only. Government should insist on the production of coal and marketing on a scientific specification. They should control the disposal of the coal in a manner which will meet individual requirements of all industries. The proved remaining reserves of metallurgical grade coals should be reserved solely for metallurgical purposes. With this exception, all coal should be produced and consumed on a regional basis not only in the interests of economy of consumers but also in the interests of traffic economy.

FINANCE

Question No. 11.—This has been touched on in reply to previous questions. It is a fact that many concerns are not in a position to put up the necessary capital for efficient and conservative production of coal. The examples of this are obvious in the manner in which the Jharia Coalfield has been exploited. It is only necessary to tour the field to see what the effects have been. Technique has also been inadequate and it is a deplorable fact that very little initiative and resource has been displayed in the mining of coal. Producers have been content to continue the practices and customs inaugurated in the primitive stages of the industry and many capable and efficient Mining Engineers have been discouraged from initiating new methods of development and production on account of the reluctance of owners to put up the necessary capital. As a rule, many Colliery Managers have been content to follow the practices of their predecessors without exercising initiative and resource. This holds as true today as it did in the early stages of mining. The whole aspect of the question is that Managing Agents and private owners are reluctant to adopt long term methods. The demand has always been for immediate profits at the cost of conservancy. Labour has also been cheap in the past and this discouraged mechanisation. These phases of events however are coming to an end and it is becoming more and more necessary for larger capital sums. Very little capital has been invested in the last thirty years or so for the further development of mines or for the improvement in mining methods. This has resulted in existing collieries in many

instances having been bled white, and they have reached the stage where their powers of recuperation must be supported by a further inflow of capital. A typical example is the reluctance of colliery owners to instal stowing equipments including transport facilities. The prospects of the amounts of capital which will be required for these are undoubtedly having grave repercussions on the industry today. The amount of damages to the reserves of coal in the Jharia coalfield is unestimable on this account and will continue until many collieries are abandoned before the remaining reserves are recovered. If owners of collieries are not given more substantial guarantees than are offered by the Sand Stowing Board it will result in disaster at a very early date.

Question No. 12.—It is incongruous that although individual concerns are under-capitalised, the general capital outlay in the whole of the Jharia Coalfield is immeasurably greater than what was necessary to develop and exploit the whole of the field. This has been due to the excessive number of small ventures where the capital has been small and insufficient but, taken as a whole, was more than adequate if central production from a fewer number of ventures had been arranged. It is not a question likely to have an unfavourable repercussion on the stability of the industry as this stage was already reached two decades ago. In the formation of these small units, the capital outlay was not related to the amount of coal to be won or the rate at which it had to be extracted and the period over which the extraction would continue. All the producers were concerned about was to get immediate profits and sell out before the critical stage arrived. This was encouraged by the speculative interests of shareholders. All the above abuses were possible on account of the favourable geological conditions under which the Jharia seams occurred. They were easy of access and immediate production without capital or at least capital infinitesimally small for conservative operations. If the Jharia Coalfield had been a concealed one at considerable depth, the abuses attending its development would not have been permissible. Small operators could not have entered the field and only concerns with adequate capital support could have taken control. In an English coal mining area similar in size to the Jharia Coalfield, it would have been found necessary to operate only half-a-dozen collieries on a central producing basis whereas in the Jharia Coalfield there are hundreds of ventures inadequately capitalised but in the aggregate over capitalised. These abuses must be safeguarded against in the exploitation of new fields.

PRODUCTION

Question No. 13.—In a radio broadcast from England on the night of 28th February 1946 it was stated that the output per head for underground workers in that country per day was 5 tons and the output per head for underground workers in America was 50 tons. It was further stated that the discrepancy between England and America was due to a higher degree of mechanisation for loading coal. It was also stated that the actual coal getting was highly mechanised both in England and in America but the chief difficulty was that of loading out the coal from the coal face into the trucks and its transport to the pit-

bottom, the bottle-necks being loading and underground transport. The better results given in America were not so much due to mechanised coal production but due to a higher degree of mechanisation in coal loading and transportation than in England. The low output per head from the underground workers in India compared with England and America is partly accounted for by the customs of the Indian miner who is reluctant to work more than is necessary for his immediate daily expenses. His standard of life is low and his requirements very few. He

has not been educated up to a sense of thrift and saving. Moreover, the few luxuries which he does desire have been unavailable to him during the war; hence his requirements for money have decreased. This undoubtedly is a basic factor in the low production. Secondary factors however are those of mechanical coal production, mechanical coal loading underground, and inadequate traffic facilities. The proportions of the cost of coal per ton at the pithead of wages and other perquisites in Tatas Collieries are as follows :—

December 1936.

Colliery	Cost per ton for wages and other perquisites.	Total cost per ton.	Percentages
Jamadoba	Rs. 2 11 8.6	Rs. 2 12 8.9	77.47
Malkera	Rs. 2 4 2.7	Rs. 2 10 2.3	85.66
Sijua	Colliery started in 1937.		
Digwadih	Cost included in Jamadoba upto 1939.		

b) December 1939.

Colliery	Cost per ton for wages and other perquisites.	Total cost per ton.	Percentage.
Jamadoba	Rs. 2 5 10.1	Rs. 3 0 3.8	78.28
Malkera	Rs. 2 1 0.5	Rs. 2 7 2.1	84.25
Sijua	Rs. 1 11 1.0	Rs. 1 12 9.0	83.48
Digwadih	Cost included in Jamadoba.		

c) December 1945.

Colliery	Cost per ton for wages and other perquisites.	Total cost per ton.	Percentage.
Jamadoba	Rs. 7 8 7.8	Rs. 9 7 1.5	79.87
Malkera	Rs. 6 7 5.31	Rs. 7 11 10.01	83.51
Sijua	Rs. 8 10 7.31	Rs. 10 10 7.05	81.24
Digwadih	Rs. 6 0 5.59	Rs. 9 1 2.35	66.41

The lower percentage rate for Digwadih is due to intense central production.

Similar information for other countries is not available.

Question No. 14.—This has been largely dealt with in the reply to the previous question and may be further elaborated as follows :—

(a) Mining is a dangerous and unpleasant calling although conditions in India compare most favourably with those in America and much better than in England. In all these countries similar difficulties exist for labour supplies. The miners in England and America have a higher standard of living and their incentive to higher earnings is greater than that of the miners in India. Production cannot be increased from Indian mines until this basic factor has been recognised and the standard of living of the Indian miner greatly increased. He is still a semi-agriculturist whereas the miners in England and America are wholly industrialists. There is increasing absenteeism in other countries where earnings are higher and the miners are not subject to agricultural influence but the problem is much worse in India. The inducements offered to miners should be very much enhanced. They should be educated to a higher standard of life and amongst the inducements offered should be a higher degree of welfare and education.

(b) This has been partly dealt with in the reply to Question No. 13. Further mechanisation is necessary not only for the production of coal but also for the underground loading of coal and its transport to the pit bottom. This is not an easy or quick remedy and is not realised that for such mechanisation collieries must be developed in a manner to suit such mechanisation. It is not possible to apply such means to the older collieries but new collieries should be developed right from the beginning with this object in view.

Question No. 15.—The reply is yes.

In many cases production of coal by Coal Raising Contractors has resulted in unsystematic mining methods but this can also be said generally about the collieries which have not employed them. The fact is that whatever method is employed whether raising by contractor or raising by direct means, this has had nothing to do with unsystematic mining methods. This depends on the degree and the efficiency of supervision by the technical staff and the responsibility cannot be placed on the coal-raising contract system. Where coal is raised directly under the supervision of the technical staff, production is generally lower than by the contract system. This is due to the fact that the remuneration of the technical staff does not depend on the quantity of coal produced whereas the earnings of the contractor

depend solely on the production of the mine. There is another factor which is becoming increasingly evident and that is on account of the heavy and increasing responsibilities placed on the technical staff for safety. They have not the time to attend to actual production. The Coal Raising Contractor leaves the technical staff more freedom for the technical supervision and safety of the mine.

Question No. 16.—Assuming the current production to be at the rate of 26 million tons per year, this, on the basis of 300 working days and at an average output per miner per day of one ton, requires 86,666 miners. For an additional production of 6 million tons per year on the same basis, this will require 20,000 new miners. Wastage will also have to be made up if a steady production of 32 million tons per year has to be maintained. The wastage or the number of miners leaving the industry every month is a comparatively unknown factor but assuming that this is at the rate of 10% per year on the existing labour-force, approximately another 10,000 miners would be required to discount wastages. This means that in order to obtain the output of 32 million tons, 30,000 additional miners are required.

If control is exercised over the distribution of metallurgical grade coal, there should be no immediate danger in this respect but for other requirements in the country, additional production is necessary. With an adequate supply of miners, there is no doubt that the existing collieries can meet the demands and the only solution is to increase the labour-force of miners or further intensification of mechanical production, loading and transport. Even if the existing collieries in India were in a condition for mechanised application there is no hope of getting adequate supplies of machinery for this purpose in the near future. The only remedy is to increase the mining force. Government action in introducing Gorakhpur labour-forces into the collieries has already had an alleviating effect but it is understood this scheme is now being abandoned by the Central Government and producers will be left to their own resources for obtaining labour supplies. It is obvious that collieries can no longer depend on the local labour to the extent they have done in the past and new miners will have to be trained. Areas of recruitment will have to be extended to get the requisite numbers and only big colliery companies will be in a position to finance such arrangements and train new miners. Such an arrangement will probably be beyond the means even of large concerns and it is imperative that Government should establish labour exchanges and central recruiting organisations.

DISTRIBUTION AND MARKETING.

Question No. 17.—We doubt if a central marketing agency for distribution of coal could be arranged voluntarily at this stage. It is a notorious fact that the various Associations controlling the production side have never co-operated to that degree essential for good marketing. Even the constituent members of such Associations cannot agree. Furthermore, a voluntary marketing agency

could not establish scientific marketing and the tendency would be for producers to continue to produce inferior grades of coal and force it on the consumers. As long as the production is less than the demand, producers will take advantage of the situation and consumers will find themselves in a very much more difficult position unless there are adequate safeguards. No marketing agency can be successful without provision being made for the marketing of coal on a scientific basis and this can only be done under Government control.

If the position should recur when production exceeds the demand, a voluntary central marketing agency would dissolve. There would again be cut-throat competition and the prices agreed would not be adhered to. Regional grouping although most desirable for reasons already explained in reply to previous questions would fall flat under any voluntary scheme as soon as production exceeds demand. It is imperative that there should be a central marketing agency under Government control and which would ensure scientific marketing as well as the regional production and distribution of coal. For these reasons, a voluntary marketing agency under the collieries, the Managing Agents, Proprietors, Merchants and Brokers and consumers cannot be a long term success and only a compulsory scheme under the control of the State would prove adequate.

Question No. 18.—Apart from metallurgical coal it is difficult to see how at the present time any regulation can be applied to the different coals for different purposes. Too many factors come into this picture. For example, regional production and consumption. Moreover, research which has been very backward in India so far has not reached the stage when it can be definitely stated what coals can be utilised and for what purpose apart from the metallurgical grades. The conditions that must be fulfilled before any such regulations can be enforced in connection with non-metallurgical coals is the more rapid progress of research and the sanction for adequate funds for this purpose. The Board of Scientific & Industrial Research has already adopted recommendations for a physical and chemical research programme but on a very small scale—totally inadequate to deal rapidly with the programme. The building and staffing and equipping of the Fuel Research Institute should be accelerated and the lack of funds should not be permitted to cause further delay.

Question No. 19.—On account of the pressure placed on Railway Board, they have already, over a period of years, gradually been dealing with this problem. For example, during and after the first world war it was considered that only the very best coals could be used for loco purposes. Since then great improvements have been inaugurated in combustion in order to absorb inferior grades of coal. During the recent war, it has become evident that the Railways have been taking more and more of the inferior grades. It has also been proved during

recent times that certain industries can absorb inferior grades where they absorbed first grades before. For the control of combustion in the various industries, there should be a staff of Fuel Combustion Engineers functioning under the proposed Government Fuel Department and which would carry out enquiries as to what grades of fuel can be most economically used for power purposes. This in time would reduce the demands on the selected grade coal.

Question No. 20.—This responsibility should fall on the staff of Combustion Engineers in collaboration with the Physical and Chemical Survey.

Question No. 21.—At the present stage, this is a most difficult matter. There has been no uniformity in plant installations and this has probably been due to the absence of definite specifications from the producers' side in the past. Before specifications of size can be defined, a general survey would have to be made by Combustion Engineers to see what particular size of fuel each installed plant was in a position to consume. It is a matter which does not affect distribution alone since there is great confusion in the clauses of leases governing the sizes for royalty purposes. This lack of uniformity in leases and in market requirements has prevented standardisation in the past. At this late stage standards can only be adopted after the general survey by Combustion Engineers referred to above. Subsequent to this survey and standardisation being adopted compulsion should be placed on all consumers for power purposes to adopt these standards.

TRANSPORT

Question No. 22.—With the exception of certain classes of fuel which may be required at any part in India for special purposes, zonal distribution should be enforced. This however should be governed by the capacity of each zone. Each zone may be a surplus one or a deficient one and adjustments would have to be made. The zonal system should be based on the equalization of rail freights and this should be worked out by the Railways on economic ranges.

See our reply to Question 21 of Questionnaire I dated 1-2-46.

Question No. 23.—This will be largely simplified by the introduction of regional production and the distribution but unless it is further elaborated it will still place certain producers and consumers at the extreme circle of the zone in a disadvantageous position *vis-a-vis* competitors on account of economic repercussions on their cost of production. In the interests of the country generally and of the rapid development of basic and secondary industries, it is necessary to average out rail freights.

Question No. 24.—Those interests which consider the fixation of rail freights on a uniform basis generally to be unsound are representative of producers whose market is not remote and also consumers who are also not remote from the source of supply. Naturally they are reluctant

to relinquish this economic advantage over their competitors. Consumers are at a great disadvantage if they are remote from the source of supply and if they are compelled to consume low grade coal. If industrialisation has to apply generally to the whole of the country and the consumers compelled to utilise low grade fuel it is only common justice to ensure that some concession will be given for the additional ash which has to be transported. Not only should there be regional production and consumption but average rail freights and concessions where consumers are compelled to consume inferior grade to remote distances.

Question No. 25.—No comments.

Question No. 26.—In view of quick turn-round of locos and wagons elimination of marshalling and the general conservation of traffic, some concession should be given. In order to give these advantage to the railways, it must be appreciated that collieries have committed themselves to large capital expenditure for loading. If some sort of concession were given, it would be a strong inducement to large collieries to install more scientific loading arrangements and the consumer would do like wise for unloading.

See our reply to Question 21 of Questionnaire I, dated 1-2-46.

Question No. 27.—No comments.

Question No. 28.—There should be a common plan wagons for all coal traffic. There should also be more efficient organisation at exchange points. It is a common experience for wagons to take any thing from 10 to 20 days to do a journey normally taking less than 2 days. On enquiry it is found that the wagons have been detained at exchange points between two railways.

PRICE AND PROFITS

Question No. 29.—A return to free competition would render futile schemes for regional production and distribution. It would also render negative any schemes for the marketing of coal on a scientific basis. It has been amply proved that the various Associations controlling the production side cannot work on a voluntary basis. They are only doing so now to a large extent as the demand is in excess of the production. All competition is presently eliminated. As soon as production approaches the demand figure the old abuses would recur. Control by Government of distribution and prices continues to be necessary, priority supplies should be made to the various industries according to their degree of importance. Basic industries like iron and steel should take a very high degree of importance since secondary industries cannot be built up and maintained without constant and regular supply of the raw materials provided from the steel works. This priority of supplies to various industries and particularly to the iron and steel industries should also get priority in traffic facilities.

Question No. 30. Control over prices and supplies to the Government Railways and Steel Companies only would intensify the confusion and difficulties of other consumers. It is conceivable that when Railways and Steel Companies got their priority

supplies regularly, the balance of the production for distribution amongst the other industries would be very small and this balance would have to be distributed equitably or in accordance with the importance of the other industries. If their supplies were not governed by priority and fixed prices, the results would be very confused indeed and subject to grave abusive practices.

Question No. 31.—A priority supply and price fixing Board representative of consumers, producers and Government but overwhelming Government and neutral parties. This Board would be under the jurisdiction of the Minister of Fuel.

Question No. 32.—In reply to a previous question, the averaging of rail freights under a zonal scheme was discussed with reference to quality and distance. The question of buying and selling of coal on a quality basis has two aspects, namely:—

(a) Value at pit-mouth.

(b) Value at destination.

In no country do these questions arise to the same extent as in India where coals have to be transported over long distances and where there is such a degree of variation in the ash contents of the respective grades of coal. There are countries like America where the same transport factors come into operation but the variation in the ash content does not exist to the same extent. These matters have been considered in the past by the Chief Mining Engineer of the Railway Board who, for many years, in a rough and ready manner has purchased low ash coals for what is called the foreign railways remote from the sources of supply. The idea behind this was to conserve rail transport by sending to such distant points only low ash coal. Since the tendency is to conserve the higher grade coals, it is unlikely that this discrimination can be exercised in the future and the value factor at destination should be taken more into account for distant consumers who are compelled to take delivery of high ash coal. It means the introduction of many variables for the purpose of calculating values at the point of consumption. No standard rate can meet the circumstances for any class of coal since this will depend on the ash ton rate for haulage. This adds to or detracts from the value of coal for every mile of haulage so that for working out the respective values at destination of the various grades of coal, one grade must be taken as the basis for value and adjustments made in the other grades for the ash ton factor. These values have been worked out in a general way taking "X" as the price factor and it will be noted there is a certain economic range for low grade coals as far as transport is concerned.

(i) *Barakar-Bokharo-Karanpur.*

(a) *Value at pit-mouth*

Grade	Ash	Pithead value
Selected A	15%	X
Do. B	17%	.882X
Grade I	20%	.75X
Do. II	24%	.625X
Do. IIIA	28%	.535X
Do. IIIB	35%	.428X

(b) *Value at point of consumption*

Grade	Ash	Value*
Selected A	15%	X + rail freight
Do. B	17%	.882X + 98% rail freight
Grade I	20%	.75X + 95% Do.
Do. II	24%	.625X + 91% Do.
Do. IIIA	28%	.535X + 87% Do.
Do. IIIB	35%	.428X + 80% Do.

(ii) *Ranigunge.*

(a) *Value at pit-mouth*

Grade	Ash + moisture	Value
Selected A	17.5%	X1
Do. B	19.0%	.921X1
Grade I	24.0%	.729X1

(b) *Value at point of consumption*

Grade	Ash + moisture	Value*
Selected A	17.5%	X1 + rail freight.
Do. B	19.0%	.921X1 + 98.5% rail freight.
Grade I	24.0%	.729X1 + 93.5% rail freight.

Since the sellers of coal however do not pay for rail freight as this is the liability of the consumers, the "ash-ton" rate should be deducted from the basic rate of each respective grade. The following tabulations show the position:—

(i) *Barakar-Bokharo-Karanpura.*

Grade	Pithead value	*Value at pithead to consumers
Selected A	X	X
Do. B	.882X	.882X less 2% rail freight.
Grade I	.75X	.75X less 5% rail freight.
Do. II	.625X	.625X less 9% rail freight.
Do. IIIA	.535X	.535X less 13% rail freight.
Do. IIIB	.428X	.428X less 20% rail freight.

(ii) *Ranigunge.*

Grade	Pithead value	*Value at pithead to consumers
Selected A	X1	X1
Do. B	.921X1	.921X1 less 1.5% rail freight.
Grade I	.729X1	.729X1 less 6.5% rail freight.

*Proportionate charges should be added for other charges such as sand stowing cess etc.

Question No. 33.—Price fixing should be based on the reply to the previous question.

Question No. 34.—If the recommendations contained in these replies are adopted as a basis of legislation, there is no necessity for any middlemen at all. The Central Marketing Board would take care of this. Previous to control being established by the Coal Commissioner, middlemen's rates were anything from two to four annas per ton. These were greatly enhanced under the jurisdiction of the Control Department. Large consumers, as a rule, dealt directly with producers and no commission at all came into the picture. Attempts were made later by various means to compel consumers to pay commission at enhanced rates. Even in normal circumstances, small consumers remote from the sources of supply may have found difficulty in obtaining their coal supplies except through the assistance of middlemen but large consumers maintained the necessary organisations for the purchase and delivery of raw materials. The difficulties of small consumers would disappear if there was a Central Distribution Agency under the jurisdiction of the Fuel Department.

Taxation

Question No. 35.—None will dispute that existing taxation on the industry is essential if the public services and amenities of the coalfield have to be maintained. There are hardships in the manner in which the taxation is devised and the cesses collected. Some on raisings and it will be agreed that to fix taxation on raisings is entirely wrong. All cesses and taxes should be on despatches. The taxation on account of the Jharia Mines Board of Health is on raisings but the taxation on behalf of the Jharia Water Board, the Central Rescue Station, Sand Stowing and Road Cess are full on despatches. Moreover the Choukidary tax is assessed at present in a manner which is a direct incentive to reduce the housing accommodation to the minimum on the collieries. This tax is Rs. 110 per year on the basis of 75 units of housing accommodation. This does not encourage colliery owners to maintain the maximum number of houses. The relief necessary is uniformity and taxes based on despatches and this should apply to the Choukidary tax as well.

National and International Commercial Policies.

Question No. 36.—As we do not favour export of coal we are not answering this question.

Question No. 37.—The effects so far have been to fix a maximum period of labour per shift and the elimination of females from underground in collieries. The former action did not affect the industry generally since the Indian miner had been accustomed to work even for shorter periods. The withdrawal of the females had little effect on the production until the supply of male labour during the late war became a serious factor. Their re-entry to the mines temporarily during the war had a most beneficial effect on production and their withdrawal once more will probably have grave

effects until the collieries can adjust themselves by further recruitment and mechanisation.

Conservation of High Grade Metallurgical Coal.

Question No. 38.—This has been dealt with under Question No. 35 Chapter VIII of Questionnaire No. I and supported by the Works' Report No. 79 enclosed as annexure IV with those replies. The original sources of supply on which the Steel Industry was founded were 12, 13, 14, 14A, and 15 seams Jharia. Also 17 & 18 seams Jharia and the Ramnagar seam of Ranigunge field. The physical and chemical properties of these seams not only vary horizontally in their beds over wide ranges but also vertically over very short ranges. These variations are so great in some cases that not all parts of the seams quoted above are suitable for making metallurgical coke on account of these adverse factors. No individual source could produce the necessary quantities required and give uniformity of grade at the same time. Supplies from different sources and with different sources and with different characteristics require careful blending at the Works. The low ash and low volatile coals from the Jharia Coalfield are necessary factors of any blend for metallurgical coke and it is essential these should be safeguarded not only as blending coals for the present but for the future as well. If research and further discoveries of new coking fields such as West Bokaro increase the range of supply, the low volatile and low ash coals will still be necessary for such purposes. It will be observed that the greatest danger is in the exhaustion of the low volatile and low ash coals. With the exception of West Bokaro no other substantial field of supply has been discovered and proved. Bokaro coals are high in volatiles and alone will not make good metallurgical coke unless blended with the low volatile supplies from Jharia.

Please see our reply to Question No. 35. Chapter VIII of Questionnaire No. I and also our Energy & Economy Dept. Report No. 79.

Question No. 39.—The coking coals used in 1938 were obtained only from certain areas of 12, 13, 14, 14A and 15 seams Jharia, also from 17 and 18 seams Jharia and certain areas of Ramnagar seam in the Ranigunge Coalfield. Already in 1938 difficulties were being encountered to obtain full supplies from these sources and certain selected areas of 16 seam Jharia and the Kerridge Section of 10 seam Jharia were being increasingly taken to make up the deficits. During the periods of low production on account of cultivation and harvesting, spotlots had to be purchased from more inferior portions of seams from No. 10 to 16 in order to make up the deficits. The quantity from these inferior sources could only be utilised to a very small extent and very carefully blended. When these small lots from the inferior sources were used in excess in the general mixture it invariably resulted in difficulties in furnace operation and a high coke rate which reduced the yield of pig iron. The reason for using inferior coal was the inability of the suppliers to give even the minimum

contract quantities as will be seen from the following :—

- (a) A long term contract for 30,000 tons per month gradually diminished under the coal control to 9,000 tons per month.
- (b) A long term contract which was originally depended on to deliver 15,000 to 50,000 tons per month gradually diminished to 7,000 tons per month.
- (c) Another source of supply which was depended on to give 40,000 tons per month gradually diminished to 12,000 tons per month.

In all these cases, the cause was the exhaustion of the seams in the particular areas. There have been progressive difficulties in making up deficits from more inferior sources and with consequent adverse results on blast furnace yield.

Question No. 40.—A statement showing the consumption of the so called metallurgical coal in the Works, classified under the three main heads, viz., (1) Coking, (2) Boiler and Miscellaneous and (3) Gas Producers, during the 10 years from 1936 to 1945 is attached (Appendix I).

Question No. 41.—The tabulation attached as Appendix No. II gives the details.

Question No. 42.—Our future requirement of Metallurgical coal, working to full capacity, will be 150,000 tons per month.

Question No. 43.—If by blending and washing we could bring the ash down to the 15.0% referred to we would reduce this 150,000 tons to 133,000 tons.

(a) *Blending.*—As regards the inferior grades of coals, the progress of researches have been only at their initial phase so far. Laboratory blending tests done with some of the better quality coals occurring in seams below 10 in different areas of the Jharia coal-field and which should come under “high ash with sub-normal or semi-coking properties—(ash upto 20% and coking index between 10—15)” indicated that coke with sufficient strength might be expected from a mixture of suitable class of good coking coals and varying proportions from 20 to 40% of the former coals.

The conclusions are entirely tentative as it has to be confirmed by large scale coking tests and putting the coke produced to actual use in the Blast Furnaces. As to the extent to which good coking coal can be reduced by blending with inferior coals could be ascertained only after performing large scale coking tests and using the product in actual practice.

(b) *Coal-Washing.*—The question of washing of coals was considered by the Steel Company very seriously and experiments were conducted by them and several samples such as Jorapukur seam-Digwadih; 16 seam Digwadih; Sijua 16 seam (Top Section) Sijua 16 seam (Bottom Section); Sijua 13 seam, etc., were sent to England and the U.S.A.

It may be mentioned here that the experiments on Washing of coals are still in the preliminary stage.

Question No. 44.—Although progress had been made by way of new installations for the economic utilisation of fuels to save coal in our Works, so much yet remains to be done for the proper use of coal, in the event of a rational distribution on a national basis.

The Steel Company is trying to utilise coal as economically as possible under the present circumstances, where there is no sharp specification of coals used for different purposes. In order to utilise it most economically, a clear-cut specification should be made according to its particular use bearing in mind that no good coking coals should be used for steam generation or any other purposes. In most of the places in India coking coal from the Jharia Coalfields are perhaps consumed for non-Metallurgical purposes. A strict control has to be kept over the consumption, replacing good coking coals with those of inferior quality. This will, however, necessitate improvements in the design of the Boilers, Furnaces, etc., to suit the fuels.

Saving in Boiler Coal.—Since the last few years, the Steel Company has been paying much attention to the use of inferior coals in the Boilers, etc., and save coal by utilising the breeze produced, in boilers of special design either fully or partly.

The saving effected due to the use of breeze is given below, along with the consumption in the Boiler Plants in the Steel Company, since 1938 :—

	Power House No. 3 Tons	C. B. Boiler W. T. & A Plant Tons	Total Tons
1938	358	..	358
1939	3,411	..	3,411
1940	21,895	..	21,895
1941	21,128	..	21,128
1942	26,842	..	26,842
1943	16,989	..	16,989
1944	61,329	15,799	77,128
1945	63,824	39,861	103,685
Total	215,776	55,660	271,436

The total coke-breeze used in the Boiler Plants upto the end of 1945 was 271, 436 tons, which worked out to 201, 200 tons coal equivalent.

It is expected that the coke-breeze requirement for the Boiler Plants in future will be 10,300 tons per month or 123,600 tons per year with the maximum production in the Plant for the next 5 years and that would come to 92,100 tons coal equivalent per year.

Besides the above, 22,556 tons of breeze were despatched to the Jute Mills during 1943-1945 for replacing coals.

Blast Furnace Benefaction of Iron Ore, etc.—The size of Ores plays a very important part in effecting an economy in the consumption of fuel; so, the Steel Company has also been seriously considering lately the question of washing and screening and sintering ore-dust. This matter is now in progress.

Question No. 45.—The reasons why coking coal suitable for making metallurgical coke should be conserved are partially dealt with in the preceding replies. In spite of the fact that for some years the Steel Industry has been working on a quota basis and not on full production, there have been increasing difficulties in getting the full monthly quotas of coal. The Dy. Coal Commissioner (Dis) can testify to this. His department had a very difficult task to perform to meet the requirements of the Steel Industry and at times he could only fulfill the quota requirements by introducing certain quotas of inferior grades. Frequently as a result of this, operation came to a complete standstill on account of hanging furnaces. A tabulation is given below which indicates the limited monthly quantities sanctioned by the Steel Commissioner and the monthly amounts which the Dy. Coal Commissioner (Dis) was able to supply even by the inclusion of inferior grades of coal as sub-quotas.

Tabulation showing the Steel Commissioner's Quota to Tatas each month since the Coal Control and actual monthly deliveries.

Month	Steel commr's Quotas.	Actual Deliveries		Excess or Deficit.	
		Tons	T. C.	T. C.	
June, 1944	139,300	145,885-17		+6,585-17	
July	127,000	135,722-10		+8,722-10	
August	127,000	117,743-15		-9,256-5	
Sept.	132,000	123,801-14		-8,198-6	
October	142,000	143,194-14		+1,194-14	
November	144,000	128,234-11		-15,765-9	
December	156,000	150,073-10		-5,926-10	
January, 1945	160,000	151,688-17		-8,311-3	
February	160,000	145,546-15		-14,453-5	
March	150,000	145,727-17		-4,272-3	
April	167,700	143,695-7		-24,004-13	
May	155,200	136,970-19		-18,229-1	
June	154,200	155,085-6		+885-6	
July	154,200	140,832-16		-13,367-4	
August	130,000	148,016-16		+18,016-16	
September	155,000	149,947-10		-5,052-10	
October	153,000	159,850-7		+6,850-17	
November	157,000	146,945-19		-10,054-1	
December	174,300	150,456-15		-23,843-5	
		(approx).			
1946					
January	180,000	164,094-14		-15,905-6	
February	160,000	154,460-0		-5,540-0	
Total	31,77,900	30,37,9462-91		-139,953-1	

Question No. 46.—If the steel industry is to expand to an output of 10 million tons as suggested by the Committee in the next 15 years, such expansion will be impossible unless the use of coking coal is restricted for metallurgical purposes only. According to Dr. Fermor's report on Indian Coal resources (Bulletin No. 54 of Indian Industries & Labour, published by the Government of India in 1935), the total estimated reserves of coking coal in India are not expected to last for more than 33 years from 1932. It is therefore necessary that immediate action should be taken to conserve 12, 13, 14, 14A, 15, 17 and 18 seams coal from the Jherria coalfield and also from the Ramnagar and Likdih seams. It is also necessary to install heavy liquid separation plants for cleaning inferior coals from the Jherria coalfield so as to make them suitable for metallur-

gical purposes by reducing the ash contents from such coal to about 15%.

As we have pointed out in our previous replies, coals from other coalfields with comparatively low volatiles in them are capable of being mixed with Jherria coal for producing metallurgical coal. It is however not possible to use them by themselves and it is therefore necessary that the coking coal seams from the Jherria coalfield should be reserved for the use of the iron and steel industry in the country.

Question No. 47.—A restriction could be imposed by Government allowing coal from such seams to be supplied to the iron and steel industry only on permits to be issued by them and at prices to be fixed by them.

Question No. 48.—The restriction of the use of metallurgical grade coal for purposes other than the Steel Industry will not result in the closing down of any collieries. Every ton of coal which the schedule collieries for metallurgical coal can produce will be required if Tata Iron & Steel Co. and the Indian Iron & Steel Co. go on full production. It has also been mentioned that the Steel Industry may expand to an output of 10 million tons in the next 15 years and far from the existing collieries being closed down, further means such as heavy liquid separation must be explored to increase the sources of supply of metallurgical coal.

Question No. 49.—If statutory measures are taken to limit the utilisation of metallurgical grade coal, State ownership and/or State operation is not necessary. In previous replies it has been shown that there is an ample market in the Steel Industry to take all the production which these collieries can give as far as the existing collieries are concerned in the Jharia and Ranigunge coalfields. As far as new discoveries of coking coals are concerned, these should be leased only to legitimate steel producers or conserved by the State for future expansion of the Steel Industry.

IV

Conservation of High Grade Steam Coal.

Question No. 50.—The high grade steam coals are the Dishergarh and Poniat seams of the Ranigunge Coalfield, Kurasia and Pench Valley in the C.P. They cannot be compared with high grade steam coals of Britain and America but for India they are of the highest class in the order named.

Question No. 51.—Even the deposits of high grade steam coal in India are limited and it would be advisable to restrict the uses of such industries as could not use inferior quality coal.

Question No. 52.—As we have stated above, it is certainly advisable to conserve high grade steam coal for use by industries whose production is likely to be affected by the use of inferior coal.

We are not in favour of exporting such coals under any circumstances as it is necessary for the development of the industries of the country.

Question No. 53.—We do not see any case for State ownership in this case but State control is necessary for conservative production and distribution under scientific specification.

V

Conservation Generally.

Question No. 54.—In the absence of detailed surveys and particularly offset surveys, this can only be dealt with generally. It would appear that the insistence of the mining regulations for safety and this subject being separated from conservation the destruction of coal still continues. It is doubtful if the insistence for safety apart from conservation has led to an increased percentage of extraction of the total coal in the mines.

Question No. 55.—The new mining regulations governing the size of galleries and pillars in the development stages, or first working of the mine have no doubt proved most beneficial. These regulations however are not sufficiently adequate for the conservative recovery of the balance of the coal in pillars or of the other portions of the seams which have been left after sectional working. These regulations are merely designed to protect the mine workings in the first stages of operation and to prevent collapses behind the lines of depillaring in the secondary stages of recovery. They do not provide for the methods of recovery in the actual depillaring at the coal faces. The only remedy for this is to couple safety with conservation in all legislation.

Question No. 56.—In the early stages of coal mining, only the best seams were produced with resulting damage to upper seams which were not considered of economic value at that time. In giving evidence to the 1937 Coal Mining Committee a prominent Mining Engineer stated that any seam over 20 per cent. in ash could not be considered as coal. With the increasing exhaustion of the better seams the inferior grades not formerly considered marketable are now assuming economic value. When the Coal Commissioner's Dept. was inaugurated new gradings were adopted and the maximum ash in Grade IIIB was stipulated to be 35 per cent. With the development of heavy liquid separation, there is no reason why inferior upper seam should not become as valuable as the good seams were formerly. This has been recognised for a considerable time by some large producing and consuming interests and a conservative co-ordinated sequence of extraction has now been adopted in their mines. The control recommended by the Coal Mining Committee of 1937 should be adopted immediately and enforced by statute. The remedy is in heavy liquid separation of inferior seams.

Question No. 57.—Where a co-ordinated sequence of extraction cannot be adopted, stowing in thick seams, no matter what their grade, should be enforced for conservation purposes. It has been pointed out that conservation really means safety. Not only safety of the workers but also a safe-

guard against coal losses. It has been pointed out in replies to previous questions that an inferior grade coal may eventually prove as valuable economically as some of the better seams being produced today. Stowing should be assisted to the fullest extent financially but within a certain economic range and control. Reference should be made to the stowing Graph given as Appendix II in connection with our reply to Question 32 of Questionnaire No. I. No assistance should be given for stowing in cases where excessive extraction has already occurred.

Please see our replies to Questions 31 & 32 of Questionnaire No. I.

Question No. 58.—There is great confusion of thinking regarding the capital required for transport and quantity of sand necessary for the replacement of one ton of coal under varying conditions pertaining to the various collieries. This has invariably been under-estimated with the result that large producing concerns are reluctant to enter into commitments. The smaller concerns have given the matter no thought at all since they are completely unable to put up any capital requirements for sand transport where stowing operations can be conducted on an economic basis. In those cases where stowing schemes have been inaugurated there has been no difficulty in acquiring rights for sand supply at a very moderate cost. There is a danger, however, that the sand supplies from the Damodar river in the Jharia Coalfield will be adversely affected by the Damodar Valley scheme and particularly by the developments at Sindri for the Fertiliser factory. Attention of Government has already been drawn to the danger of the sand banks on which the existing schemes of stowing are based, being inundated. Should this result it will be necessary to reorganise sand extraction from the river in a totally different manner and large capital sums will be required for new plant and equipment. Government should meet these requirements if it is not possible to preserve the 'status quo' and should subsidize all schemes of stowing to the greatest extent and which can be adopted on economical lines.

Please see our Recommendations in connection with our reply to the 2nd Preliminary Question of Questionnaire No. I.

Question No. 59.—Since a stowing scheme accrues to the results in any royalty owner in as much as his assets are safeguarded and from the long-term point of view he will recover the additional sums in royalty receipts, he should be compelled to contribute a certain share of the cost. This principle has already been accepted in the contributions made by royalty receivers to the Jharia Mines Board of Health and to the Jharia Water Board.

Question No. 60.—There is a similar instance in the conge area of the Jharia Coalfield where the colliery owners are compelled to give support to the complicated net-work of railways. As a rule little difficulty is experienced in getting permission to extract such coal provided compensating support

is given by stowing. The whole of the expenses however devolves on the producer and the railways under the supervision of their Mining Engineers and the Mines Department apply the regulations in this respect in a most stringent manner. It is doubtful if under common law the railways can insist on the owners giving such support. Little opposition has been raised by them on account of suort being required for branch lines designed for their individual colliery only. It is inequitable however for railways to demand from the coal producers support for main lines which are not designed solely for them but for the general traffic of the whole of the coalfield. In the latter case the colliery owners should be compensated for any coal locked up. It is conceivable that an owner may continue production and exhaust his seams with the sole exception of the support required for the main railways and branch lines. He may not have the capital required for the installation of stowing schemes and the colliery may have to be abandoned before all the reserves have been recovered. Such liabilities should be taken over by the railways or by the Government in order to secure the maximum amount before the particular area concerned has become isolated from the general workings. As a case in point, the Tata Iron & Steel Co. have an estimated total of 21,202,404 tons under-lying the main B.N. Rly. line and the Bhaga marshalling yards which under the present conditions can not be recovered except at an immense capital outlay and recurring charges on their own initiative. There are many similar cases in the coalfield and another outstanding example is that of the Empire Coal Co. which was forced to go into liquidation and close down its colliery when only a small proportion of the total coal in the mine had been recovered.

Question 61.—There has been insufficient research in connection with these matters. No doubt grades of coal unsuitable for other purposes can be consumed for power production in the form of pulverised and colloidal fuel. An outstanding example—the seam of coal in the centre of the Jharia coalfield which has been rendered into a hard close grained cokes due to mica peridotite intrusions adjacent to the seam. There is no doubt this could be produced and converted into a powdered fuel which could be utilised to power purposes. Further intensive research is required.

Question 62.—This matter has been under consideration for many years both on a limited scale and on a general way. The former for central power stations for the coalfields alone and the latter embracing railways and industrial areas over a very wide range. In the earlier days of the industry on the Jharia Coal field a large number of independent small power stations were erected by interests which had by the necessary capital resources. In spite of attention being drawn at that time to the necessity of a central power station for the Jharia Coalfield's area, no agreement could be arrived at and the larger concerns installed their own little local power stations for individual requirements. It was not until a considerably later stage that the Sijua-Jharriah Central Electric Supply scheme came into operation; This Sijua-Jharriah scheme, if entered into at an earlier stage, would have obviated the necessities for little individual stations. On the further develop-

ments of the coalfield the Sijua-Jharriah station could not take up all the requirements for power and extensions apparently were frustrated by the proposals (put up for a Bihar Provincial scheme. Meantime, this scheme did not materialise and Tata Iron & Steel Co. were compelled to increase the capacity of their own station) for the developments they had taken in hand in 1938 to increase the production of coal. It is a recognised fact that the bulk production of power is more economic than produced from small units and it is to be regretted the central scheme advocated for the Jharia Coalfield in an earlier stages of its development was not implemented. The position now is most serious regarding the supply of power for the Jharia Coalfield and it is trusted that the Bihar Provincial scheme will be implemented without further delay.

The matter has now assumed larger proportions and in view of the abundance of power coal along the E.I. Rly. alignment for a range of 200 miles or so from Ondal to daltonganj, the prospects are ideal for central power production along this alignment for railway and industrial electrification and also for power supply to Calcutta. It is possible to carry the triangle of supply along the alignment of the B.N. Rly. to Jharsuguda where adequate supplies of steam coal are also available. The ring main could be completed on the alignment from the Tata Iron & Steel Co's Works along the Adra-Anara railway route to Asansol where supplies from gas fired stations would be a source of further power. It has been a well-known fact since 1910 that the bottleneck for traffic on the E.I. Rly. was that section between Ansansol and Burdwan. This bottleneck was very much aggravated by the quantity of coal which has to be transported to the Calcutta market. For such purposes, the very best grades of coal had to be supplied, particularly for the Calcutta Power Supply Co. Not only could the dissipation of this high grade coal be avoided but traffic conditions could be conserved if all power requirements were produced from the combustion of low grade coal on or adjacent to the coalfields and supplemented by gas fired stations at Jamshedpur and Hirapur. There may be difficulties about interprovincial agreements and opposition from vested interests. There may also be opposition on the part of the railways through loss of revenue on account of coal traffic. Within recent years, the E.I. Rly. has expended a vast amount of capital in duplicating tracks between Asansol and Burdwan which might have been Unnecessary to the same extent if this aspect of central power propuction and distribution had been more effectively handled. It is against the best interests of the country to utilise high grade coals for the production of power and were a schemes on the above lines carried into effect, the poorer grades of coal from Daltonganj to Ondal could be utilised for the purpose.

The ring main could subsequently be extended from Chandil on the B.N. Rly. through the Chandil Muri line to link up again with the E.I. Rly. at Gomoh. This loop would provide current for the Karanpure and West Bokaro Coalfields and the

Damodar Valley. Subsidiary ring mains would provide power for Ranchi and Hazaribagh and the industrial areas likely to be developed in these regions. It is suggested that there should be a national grid scheme to cover the alignments above indicated with a central power station at Daltonganj, one near the Jharia Coalfield, one near Ondal and one near West Bokaro, and supplemented by a further station at Jharsuguda and gas fired stations at Jamshedpur and Hirapur. Existing stations could be supplied in bulk from the grid and utilised as distributing sub-stations. No vested interests should be permitted to obstruct these developments.

Question 63.—The characteristics of the Indian Consumer of soft coke lead him to demand a domestic fuel which will burn readily. If low temperature carbonisation is adopted to obtain other derivatives from the inferior grade coals the residue will be a form of coke to which the domestic market is not accustomed. This matter has been receiving attention in other countries for a considerable period of years and the chief difficulty has been the disposal of the residual coke. It does not burn freely and is liable to splintering when under combustion. On this account it has been treated with great dis-favour by domestic consumers. If such low grade coals are converted into domestic coke, the resultant ash may prove much higher than in the soft coke manufactured under current methods since all the volatiles will be extracted. It will therefore be necessary to submit these coals in the first instance to a process of heavy liquid separation to reduce the ash.

Question 64.—This is a matter which will depend on the developments of the Chemical Industry.

VI

Mining Leases and Fragmentation

Question 65.—We have no information on this point.

Question 66.—The chief disadvantages are as follows :—

- (a) Compulsory duplication of shafts and inclines leading to fragmentation since no rights are included to bring the coal underground from one area to another.
- (b) Loss of coal areas due to the demarcation of boundary lines inconsistent with geological conditions. This has resulted in coal areas being lost or locked up by faults and dykes and intrusions.
- (c) Difficulties of negotiating way-leaves in order to centralise production.

Question 67.—There should be standard leases for coal bearing lands generally applicable to the whole of India. No leases should be granted unless under guarantees that the lessee can put up sufficient capital adequate to ensure conservative operation. Lease should be granted only on long term periods to ensure the eventual extraction of all the coal.

Question 68.—If Government acquires the royalty rights in all new leases standard rates of royalty should be fixed and salami abolished. Salami is really an advance payment on royalty and may

have been responsible for a great deal of the fragmentation which has taken place in the Jharia coalfield. Small operators have been unable to pay the high salamis demanded for large areas and these have been parcelled out in small lots. If Government enact measures for the standardisation of royalties, this cannot apply to existing leases on account of the salami factor. Salami is part and parcel of the royalty and where a low royalty rate prevails it has probably been due to a large salami payment when the lease was implemented. This factor must be taken into consideration wherever royalty rate prevails.

Question 69.—(a) An uneconomic colliery is one which cannot provide a reasonable return on the capital invested without resort to reckless method of coal production. This may be due to inadequate capital being invested or it may be due to the gradual exhaustion of the colliery and no reserve funds having been created in the past through dissipation of high profits in times of great prosperity.

(b) The extent of such holdings are not so obvious as during times of depression but should production again exceed demand, such holdings would be more obvious since they would be compelled to suspend operation as has been experienced before.

(c) During the period immediately prior to the existing coal boom, many of the concerns working under direct leases had reached the un-economic stage and had parcelled out their remaining assets, particularly of inferior grades of coal as sub-leases. The prosperity of these sub-leases will continue as long as the demand is in excess of production but they will again become un-economic unless the existing owners are in a position to put up more capital for coal beneficiation.

(d) The chief reason for fragmentation has been the facilities with which seams could be opened up and exploited in the Jharia Coalfield. The salami has also been a large factor in this respect since the small operators could not put up the necessary capital for large concessions.

Question 70.—Fragmentation of the coalfields is not desirable in the national interest. It leads to uneconomic exploitation and grave damage in many cases to the adjacent properties. This is exemplified in the blanketing and stowing schemes which have been forced on the Stowing Board on account of uneconomic ventures going into liquidation. It also leads to waste of capital since the capital invested in such small ventures is insufficient but on the aggregate more than is necessary for central schemes of production.

Question 71.—Legislation should be enacted for ensuring that the areas leased are supported by adequate capital for production over a long term period. The areas leased should be of sufficient size to ensure amortization. Out of the suggestions (i), (ii), (iii) & (iv) given the only possible remedy is State ownership of royalty rights and subsequent amal-

gamation of leases where possible or desirable. The appointment of a staff necessary to negotiate between the lessee and the lessor would be inadequate without statutory powers. There would be no voluntary schemes of amalgamation and if legislation was enacted to enforce amalgamations, this can only apply to areas which have not already been fragmented. In those existing fragmented areas, developments and mining methods have been conducted in a primitive and un-co-ordinated manner and it would be difficult to co-ordinate them at the present stage. It might yet however be possible to bring some of these fragmented areas within the scope of larger areas if the deeper portions of a fragmented colliery have not yet been exploited. The immediate action which is necessary has been recommended in replies to previous questions.

VII

Opening of New Coalfields

Question 72.—There are a number of well-known and untapped or partially exploited coalfields, but so far very little is known about them on account of their inaccessibility. The principal field is probably that lying along the alignment between Daltonganj and Anuppur in Korea State and passing through Surguja. Messrs. Andrew Yule & Co. entered Daltonganj field long before the first world war and during the period of the same war, a survey was conducted to link the railway between the two points through Surguja. This area probably contains as much coal as in the whole of the Jhariz and Raneegunge coalfields combined. It cannot be properly explored or developed until railway facilities are available and the project conceived during the first world war should now be expedited. This coalfield if exploited would be eminently suitable for regional consumption in Upper and Central India. Another coalfield although well-known before the first world war was not developed on account of its inferior grades of coal and also on account of its inaccessibility. This was the West Bokero and Karanpure coalfields. More attention has been given to this field in recent years and we understand railway developments are projected. These new areas probably have deposits of coal comparable with the Jhariz coalfield when it was in the virgin stage. Various private concerns have developments in hand.

Recent discoveries in Assam and Madras have yet to be further investigated before anything definite can be said about them. It is known however that the Assam coals are excellent coking coals but too high in sulphur content to be utilised by the metallurgical industry at the present time. Should research on desulphurisation prove successful and if iron ore and limestone can be found in Assam, this would no doubt lead to an extension of the steel industry to that area.

VIII

Administrative Measures

Question 73.—If legislation is enacted as a result of the recommendations of your Committee to Government and assuming that a Fuel Department is created which will be advised by a Mining Board, a large and efficient organisation will have to be built up. This organisation should have its headquarters in a centre accessible to all the coal fields. It will have departments to deal with the varied branches of control which will be created. A special branch should be set up under this organisation for dealing with finance. Other parties such as railways who collect levies no doubt dislike the system as much as the Coal Industry does. Many people in the Industry consider that the collection charges are excessive. Regarding the utilisation of the amounts collected nothing so far has been contributed to the most important factor of all, namely, research. Where the Government is so reluctant to grant sums for this object, it is most necessary that it should be subsidised by producers and consumers.

Question 74.—It would be more advantageous for a single body to exercise all these functions. This single body should be a department in the general organisation which would be set up if your recommendations result in legislative powers being taken by Government. A sub-department to exercise all these functions should be more representative of the industry and less influenced by official nominees.

Question 75.—Reply to the preceding question covers this matter as well. These multiple bodies should be combined in a sub-department of the general organisation.

THE TATA IRON & STEEL COMPANY, LIMITED, JAMSHEDPUR

Coal Consumption in the Works 1936—1945 (10 years)

1	2	3	4	5	6	7	8
Year	Coke Oven	Boiler and Miscellaneous		Jamadoha Rubble in Gas Pro- ducers.	Gas Rubble and Steam (Non-metal- lurgical)	Total Coal Con- sumption	Remarks
		Steam	Slack				
1936	978,502	287,148	5,366	596	241,960	1,513,572	
1937	1,183,665	277,052	4,785	15,509	237,913	1,718,924	
1938	1,203,405	256,023	45,265	11,355	231,277	1,747,325	New Boilers in Power House No. 3 put in operation.
1939	1,429,308	198,874	98,392	4,128	221,433	1,952,135	Sufficient C.O. gas being available. New Blooming Mill Gas Producers were down, where Jamadoha rubble was being used.
1940	1,624,635	202,876	87,981	..	223,295	2,138,787	
1941	1,660,836	224,086	96,007	..	198,825	2,179,694	
1942	1,610,872	219,539	83,570	1,043	205,158	2,120,182	
1943	1,474,162	257,834	97,951	17,653	220,997	2,068,597	Oven pushing at Coke Ovens reduced due to adverse coal situation. Consumption of Steam Coal in Boiler House No. 2 appreciably reduced due to the 3rd & 4th Boilers coming into operation in Power House No. 3. Sheet Mill boilers down from June 1944. S.M.S. No. 2 boiler down from May 1945.
1944	1,237,409	137,550	128,495	23,985	216,470	1,743,909	
1945	1,306,208	80,039	135,393	17,613	216,581	1,755,834	

APPENDIX II

QUESTION No. 41 OF SECOND QUESTIONNAIRE.

Year	Output	Colliery Consumption	Supplied to Works	Supplied to Ore Mines & Quarries Tata Chemicals, Agrico & Negapatam	Supplied to Railways and other Consumers
1936	467,816	36,791	313,797	12,480	101,544
1937	667,013	38,095	576,551	11,929	40,608
1938	858,206	44,060	749,557	14,004	34,577
1939	840,364	54,462	779,941	22,972	13,060
1940	942,593	59,803	824,109	12,849	16,239
1941	1,004,964	63,200	915,691	16,520	37,065
1942	1,012,834	61,939	876,267	17,586	32,002
1943	1,028,008	73,733	930,347	20,916	21,934
1944	1,036,851	89,381	917,863	19,245	17,174
1945	946,444	77,436	712,120	28,961	115,151
TOTAL	8,805,093	598,500	7,596,243	177,462	429,354

Balance 3134 tons adjusted from stocks.

In former times the Steel Co. tendered their surplus coal to the Railway Board and despatched on this account. In 1937 the Tata Iron & Steel Co. stopped this practice as a matter of principle and as a measure of conservation of metallurgical grade coking coals. The quantities despatched subsequent to that year and up to 1944 were very small and consisted of the inferior grades produced in their own collieries which were not

satisfactory for coke making. These quantities moreover were surplus to their boiler coal requirements at their Works. The increase shown in the year 1945 was despatched under the control of the Coal Commissioner since the Steel Industry was subject to certain maximum quotas.

The quantities despatched to Tatas subsidiary and allied concerns were small and consisted of coal unsuitable for making metallurgical coke.

ORAL EVIDENCE OF SIR JEHANGIR GHANDY AND
MESSRS. A. FARQUHAR, E. T. WARREN AND
R. H. MODY REPRESENTING THE TATA IRON
& STEEL CO., LTD.

Question.—Is it your opinion that while the activities of the Coal Grading Board have helped the export trade, they have directly or indirectly led to the continuation of waste which it is the desire of every industry to prevent?

Answer.—The activities of the Coal Grading Board did no doubt help the export of coal, but they were directed to a considerable extent against high grade metallurgical coal also reserves of which are limited. Our view is that the export of coal is not desirable, especially now when the demand for coal is very much in excess of supply.

Question.—If a ban on the export of coal is imposed, what effect will it have on our overseas trade and on our export markets?

Answer.—I do not know whether the Indian coal industry desires to have overseas markets for coal under present conditions. From the point of view of national interests, metallurgical coals should in no circumstances be allowed to be exported. There is a lot of coking coal in the country which cannot be used for metallurgical purposes due to the high ash content. If, by washing, the ash content can be reduced to a reasonable extent and some quantity can be exported in return for imports which would outweigh the loss of coal thus exported, there is no objection to such export.

Question.—Is it possible to wash down coal to the desirable extent so that it becomes acceptable to overseas traders?

Answer.—Certain plant and equipment is required by collieries to enable them to give the physical sizes required. From research already carried out, there is sufficient justification for stating that all coals are amenable to reduction of ash. We have got a definite statement from a company that the ash content of coal can be reduced by washing from 13 per cent. to 15 per cent.

Question.—You have stated in reply to our questionnaire that the tightening up of safety measures without enforcing general stowing resulted in certain unstable coal areas being abandoned. Could you give us some instances?

Answer.—The activities of the Stowing Board are directed only towards safety. There are instances where assistance for stowing could not be given by the Board for conservation. I know, and all Mining Engineers know, that the practice of abandoning unstable areas is going on generally in the coalfields, but it is difficult to give any specific instances.

Question.—Could you tell us which seams in the coalfields should receive priority in the matter of sand-stowing?

Answer.—Our view is that metallurgical coal areas should receive first priority in the matter of stowing. Nos. 15, 14, 13 and 12 seams in the Jharia coalfield are in the greatest danger of exhaustion and in many of these areas it is impossible to extract the maximum quantity of coal from these seams without sand-stowing now, and these are the ones which should receive first priority.

Question.—You have suggested the provision of special wagons for supply of coal to the steel industry which should not be diverted to any other traffic. Do you appreciate the extra expenditure involved in this measure for the railways?

Answer.—The B. N. R. are supplying some wagons exclusively for iron ore etc., and I think it would be possible for the railways to provide suitable wagons to carry coal for the steel industry considering the importance and volume of the traffic. We want Hopper type of wagons which can be utilised only by large consumers. Obviously these wagons should be supplied only to those collieries where mechanical loading plants are being worked.

Question.—You, as very large consumers of coal, suggest that you should have extra railway facilities. These may necessitate a revision of freight rates; and as large consumers are you prepared to pay for better operational efficiency?

Answer.—We are agreeable to pay for efficiency. As a matter of fact, it has been recommended by the Iron & Steel Panel that freight on metallurgical coal for pig iron production should be reduced and fixed at a rate lower than that for other coals. In view of the recommendation of the Panel to instal two more steel producing units, the demand for metallurgical coal will be expanding, and supply will be by millions of tons. As the quantity of the traffic is very large, surely the rate of freight should be lower.

Question.—Would you prescribe any minimum output as a prerequisite for the grant of a siding to a colliery?

Answer.—Unless a colliery is able to load on an average 10 wagons a day, it should not be given a siding.

Question.—It has been put to us that a colliery which can guarantee an output of one wagon a day, i.e., 20 tons of coal, should be permitted a siding when it is prepared to pay for the work. What are your views on this.

Answer.—You cannot operate a colliery producing 20 tons a day economically. I would suggest that such collieries be amalgamated with others.

Question.—That again is a debatable question. A very strong case has been put before us that collieries operating to-day, however small they are, are economically worked and serve a useful purpose in the coal industry. Should they be refused the grant of a siding just because they happen to be small?

Answer.—The greatest difficulties with these small collieries is to get necessary capital to operate and develop them efficiently and on a sound basis, but the fact remains that the total amount of capital invested in the coal mines is very much larger than what it should have been, if production had been more centralised with higher outputs. From these factors we are led to think that some of the small collieries should be grouped together into larger units. I would suggest that a minimum of 10 wagons a day or 200 tons should qualify for a siding. This should also tend to better quality of coal loading.

Question.—You have recommended the revival of a rebate for the installation of weighbridges. Should the rebate be given effect retrospectively?

Answer.—We established a few weighbridges in the last few years, and I certainly think the rebate should have retrospective effect.

Question.—You have suggested that mechanical loading appliances have not become popular in this country. What are the reasons?

Answer.—The coal industry has been much discouraged from using mechanical loading appliances because the type of truck suitable for mechanical loading was not forthcoming in sufficient numbers. In many cases mechanical loading plants were dismantled and closed, as it was not possible to get suitable types of wagons. Moreover wagon supply is too irregular.

Question.—Do you think any responsibility lies on the consumers to have mechanical unloading plants at their end?

Answer.—The number of small consumers in this country is high, and they cannot afford to instal mechanical unloading appliances. But big industries are springing up in India today, and these will probably have to fix up unloading appliances eventually.

Question.—Are you of the opinion that raising costs of coal today are high?

Answer.—They are practically three times compared with pre-war figures.

Question.—What measure would you suggest to bring them down to a reasonable level?

Answer.—I would suggest mechanisation. But this is expensive. If the selling price of coal is a constant factor, it is economic to use coal-cutting machines because you can get larger output. In the Jharia coalfield we have adopted machinery for coal-cutting and the mechanisation has done distinctly well.

Question.—Do you consider it appropriate for railways to ask for 30% of their requirements in good coking coal?

Answer.—In our view it is criminal, in the face of the fact that known reserves of metallurgical coal are so limited that railways and ships especially should use this type of coal

You can get the same amount of heat by adapting boilers to burn pulverised fuel and low grade coal.

Question.—In respect of washing coal, do you consider, apart from seams 10 and 11 in the Jharia coalfield, any other seams suitable?

Answer.—No. 16 seam gives very good results. All that has to be done is to remove the foreign material from the seam. Any seam amenable to this treatment will be a success.

Question.—Do you favour the removal of the excise duty on benzol which is a bye-product of coal?

Answer.—Yes. I think there should be some legislation for enforcing that all coke plants should be equipped to produce benzol from their ovens as a matter of national interest.

Question.—Are you, Mr. Farquhar, satisfied that the plan of the Fuel Research Institute as detailed in the printed pamphlet and other papers sent to us has been properly drawn up?

Answer.—(Mr. Farquhar) When it was agreed on principle that there should be a Fuel Research Station, we were asked to prepare a plan. We have submitted one for experts to see. The original plan consisted of considerably more expenditure than that sanctioned. The reduction in the funds made available to the Institute will detract from its usefulness. There is a unanimous feeling, both amongst the industry and the consumers, that it is very essential, as a preliminary to any reorganisation of the industry, that a complete physical and chemical survey should be made of the coals available in the country. I doubt if the Fuel Research Institute as finally emerging out of the financial sanctions would be able to carry out his programme efficiently. The personnel as sanctioned is quite inadequate to cope with the task entrusted to the Institute as programmed for at present.

Question.—If the Coal Industry were put under the control of one centralised Government Department, do you think that the Fuel Research Institute should be placed under that Department or should it function as an independent or semi-independent unit or should both industry and Government participate in its administration?

Answer.—In the matter of research, there should be intimate co-ordination between the Provinces, consumers, producers and Central Government.

Question.—In almost every country in the world wage costs per ton of coal mines vary between 50 and 65 per cent. of the total cost. The percentages shown in respect of Tatas' Collieries for 1936, 1939 and 1945 vary from 77 to 83 per cent. Why should they be so high in efficiently run collieries like Tatas?

Answer.—If you compare the rates of wages paid by Tatas and other colliery owners, you will find that Tatas are paying higher rates of wages,

Question.—When output falls during the monsoon period, have you any idea as to how the deficit in production could be met in order to maintain a uniform and consistent flow of coal to your works?

Answer.—The best thing would be to stock coal during the good season. It is unfortunate that there should be a seasonable drop in production. In 1917, the aborigines employed in Tata's collieries used to go away during the harvesting time. We provided them with all amenities and they have now become an industrial community. Mechanisation has also had its effects.

Question.—Is it not a fact that with all the extra amenities and concessions you have given to your labour in the coalfields, during the agricultural season the raisings from your collieries also drop?

Answer.—I am not satisfied that something more could not be done to keep the labour in the coalfields. Accepting that mining is an unpleasant job, conditions in the collieries are also very arduous and labour is still partly agricultural.

Question.—It has been put to us by very responsible and representative bodies and individuals that the trouble today in the mining industry is that the industry pays the miners too much and that the mining labour today gets more money than is good for the industry. What are your views on this suggestion?

Answer.—I do not agree with the statement. Mining is an unpleasant job, and I think better conditions of living, better welfare activities, vigorous action against absenteeism should be introduced, and a regular mining community established. The real reason behind the irregular and migratory nature of the labour is that there are not enough welfare activities in the industry. The labour should be properly educated and responsibility instilled into them.

Question.—It has also been suggested to us that one of the main reasons of low output per man shift is that a sort of "caste system" has been introduced amongst the workers underground, in the sense that timber-men would not do any work other than timbering, trolley-men would not work other than on a trolley and so on. What is the remedy for this state of affairs?

Answer.—This is a defect in administration. There is no division of labour in our collieries. It is a question of proper organisation.

Question.—You have suggested that as long as supply remains short, the present method of control over distribution should continue. Is it your opinion that the present control works effectively without discrimination and efficiently?

Answer.—The present coal control is functioning inefficiently. I do not blame the Coal Control Board for that. I blame the inadequacy of the facilities at their disposal for working as a central distributing agency. For the last five or six years we have been in a terrible mess as far as our coal supplies are concerned. The difference in price between Selected 'A' and the lowest grade coal is not wide enough, with the result that the difference gives

an incentive to producers of low grade coal to produce more at the expense of high grade coal. I suggest that alongside the control over distribution there should be set up a control over production, particularly in respect of the coal of quality attaching to each unit.

Question.—Could you tell us what sort of effect high ash coke will have on the efficiency of blast furnace operations, both in quality and output?

Answer.—The result is lower output and higher coke consumption. In the U.K. and U.S.A. they use very low ash coal but here we go up to 23 per cent. If we use coke with different ash content, it leads to more trouble than with coke with uniform ash content. Uniformity is essential at all times.

Question.—In your written reply you have stated that there are certain seams in Jharia and Raniganj coalfields which contain suitable metallurgical coal. Are there any other seams in India whose coal can be used for coking purposes, without blending?

Answer.—I do not know. We have tried coals from Bokaro and C.P. Bokaro coal is coking coal, but we have to blend it with other coal. Our whole practice has been based on three different grades of coal, viz:—

- A Low volatile, low ash,
- B High volatile, low ash,
- C Low volatile, high ash.

We have experimented on different proportions to see what proportion would give us a good coking mixture.

Question.—You have estimated your future requirements of coal at 150,000 tons per month. Is this correct?

Answer.—Our consulting engineers are planning new schemes, and if these schemes are put through, our requirements will be more than 150,000 tons of coking coal per month. By blending and washing we could reduce this requirement and get better results.

Question.—Allegations have been made that the steel works have been reluctant to use coal other than the best quality. Another allegation is that the steel works are reluctant to make experiments with low grade coals. What are your comments on these allegations?

Answer.—The first is correct. The steel industry is a basic industry, and it requires special quality coal. In 1943 we experimented with coals containing high ash, and if we were to use these coals continuously, we would have to close the plants. The second allegation is unfair. We have done more blending than any body else in the country, and a Committee was set up to consider the use of inferior grade coals. We cannot mix all coals indiscriminately for metallurgical use, as the effect of an irregular blend is detrimental to blast furnace operations.

Question.—You have suggested that Jharia seams 12 to 18 and Ramnagar seam should be given priority for conservation. Do you consider any measure of conservation in regard to Nos. 11 and 10 seams in the Jharia coalfield necessary?

Answer.—It is dependent on a proper supply of washed coal. From experiments it has been found that No. 10 seam is as good as, if not better than, 12, 13, 14 and 15 seams, if the ash is reduced and uniformity assured.

Question.—There are other industries which also need coking coal. Do you think their requirements can be met from coals in seams other than those you have suggested for conservation?

Answer.—The amount of coke required for other purposes is so small that it could be met from the seams suggested for conservation by us.

Question.—Would you object, if a restriction imposed on the production of metallurgical coal, applies equally to the collieries owned by the steel works?

Answer.—We have no objection, provided we are absolutely sure of getting our requirements of coal.

Question.—Is there a case for compensation to those collieries who might restrict their output or might have to close down as a result of the ban? If yes, would the steel industry be prepared to bear the primary share in the compensation?

Answer.—I do not think that the steel industry should bear the cost. Government has got to bear it in the interests of the country for its national development and economy.

Question.—If a properly planned scheme of stowing is put into force for the Jharia coalfield, we may need as much as 8 to 11 million tons of sand a year. Is there any alternative material which can be used as a substitute for sand?

Answer.—Dr. Fox and Dr. S.K. Roy of the Indian School of Mines made a survey of the Jharia field and pointed out large deposits of debris which can be used for large-scale stowing. The Hopper wagons which take coal to the steel works at Jamshedpur can take back blast furnace slag on their return journey, and this slag can be used for stowing. In Germany most of the stowing is done by blast furnace slag. We will give the slag for nothing.

Question.—What are your views about pneumatic stowing?

Answer.—We do not know very much about it. It is more expensive than the ordinary sand-stowing method.

Written Evidence of M/s The Indian Iron & Steel Co. Ltd.

I.—GENERAL

Question 1.—It is considered that such conditions still prevail which make it necessary for regulating the leasing of coal-bearing lands and also the question of irregular boundaries should be given attention.

Attention should also be given to the loss in depillaring of coal in all seams of commercial value get-at-able to profit.

A standard type of Mining Lease should be prescribed by the Government enumerating

conditions under which mining should be carried out. This would prevent excessive sub-division of valuable coal-bearing properties.

The question of supply of sand to all Collieries in the coalfield by the Sand Stowing Board should have immediate effect.

II.—GRADING AND EXPORTS

Question 2.—India has almost limitless wealth in reserves of metalliferous ores. To exploit these metallurgical coal must be used, either indigenous or imported, or the ores themselves must be exported. The most profitable way is to use indigenous coal and, in view of the very large ore reserves and the very small metallurgical coal reserves, there is a case for not exporting metallurgical coal. Logically, to be successful, this would necessitate not using metallurgical coal in India for other than metallurgical purposes.

Question 3.—No comments.

Question 4.—No comments.

Question 5.—No comments.

Question 6.—No comments.

Question 7.—No regrading of seam is necessary. Coal loaded into wagons should, however, be graded to the customers' requirements.

Question 8.—Yes and compulsory—see answer to Question 7.

Question 9.—No comments.

III.—PORT FACILITIES

Question 10.—No comments.

Question 11. No comments.

Question 12.—No comments.

IV.—RAILWAY FACILITIES.

Question 13.—For the proper running of industrial plants, and particularly continuous operation plants, it is essential that there should be regularity of supply of coal. At present there are insufficient wagons to ensure this, which results in irregular supplies at the Collieries, and irregular raisings, and irregular incoming traffic at consuming plants.

The needs of particular Industries such as continuous operation plant should receive coal in wagons best suited to their purpose—i.e., Hoppers or Tipping.

Question 14.—Provided collieries have an adequate regular supply of wagons no changes are necessary.

Question 15.—Coal should be loaded on six days only and Sunday loading should definitely be abolished.

Question 16.—Any colliery desiring a weighbridge should be granted the facility and weightment returns accepted by the Railway Company.

Question 17. No.

Question 18.—Sufficient siding accommodation is always desirable.

Question 19.—Weighbridges should be installed at all collieries despatching fairly large tonnages. Under the present system not only do unnecessary delays occur, but theft takes place, and also, when adjustments are being done, possibly coal, which has been taken from overloaded wagons, is thrown on to wagons which are underloaded and this is done irrespective of grade of coal. The result is that wagons of superior grade coal frequently contain inferior grade coal on the top. Wherever weighbridges are installed they should be of the dial type, capable of weighing wagons coupled, to speed up weighing.

Question 20.—The shortage of open wagons for coal loading has been making itself felt increasingly over the last 20 years as more collieries have installed mechanical screening and loading plant. This shortage of open wagons not only causes delay at the loading point, but also unnecessary loss of wagon hours at the receiving point, for coal is frequently supplied in covered wagons to destinations such as Iron & Steel Works, which cannot backload covered wagons and have to return them empty to the Railway Company. At one time to meet this difficulty the E.I.R. used to stable from 25/50 open wagons at Burnco Siding but, during the war period, this has had to be dropped and covered wagons which are received containing coal are now worked out empty and empty open wagons for despatching product have to be worked in from Sitarampur or Assansol.

At our Hirapur works, where pig iron is loaded mechanically by magnet, plant production can only be loaded in open wagons. For this reason the Railways have always arranged that collieries despatching coal to Hirapur Works would load open wagons which could be backloaded with iron. The statement below shows the number of wagons of coal received via E.I.R. at our Hirapur Works in open and covered wagons from 1933 to 1945. It will be noted that the percentage of coal arriving in covered wagons, merely because open wagons are not available, has increased from 55% in 1935 to almost 50% in 1945. See also answer to Question 13.

	RECEIVED VIA E.I.R.			% OF COVERED OF TOTAL
	OPEN	COVERED	TOTAL	
1933	9292	184	9476	1.94
1934	19159	738	19897	3.71
1935	21438	118	21556	.55
1936	22079	257	22336	1.15
1937	20639	1932	22571	8.56
1938	16757	2089	18846	11.08
1939	16975	2493	19468	12.81
1940	24757	5632	30379	18.51
1941	25270	10882	36152	30.10
1942	21071	15082	36153	41.72
1943	17990	14271	32261	44.24
1944	15723	15502	31225	49.65
1945	17596	17246	34842	49.50

Another point requiring attention is that modern plants, consuming high tonnages of coal, must also have means for mechanical unloading, such as side tipplers or rotary tipplers. This will necessitate the receiving of coal in open wagons only. Also, large consumers of coal such as Iron & Steel Works, with a relatively short haul from the Collieries, should receive their coal in specially designed hopper wagons to facilitate bottom discharge.

It might be possible to utilise covered wagons with a sliding, or other door, in the roof but obviously the open wagon is a better proposition.

Question 21.—Group system of freight rates is desirable. This would prevent any advantage or disadvantage one colliery would have over the other.

Question 22.—From the point of view of the Iron & Steel Works it is most undesirable that coal should be regarded as a seasonal traffic. From the point of view of economical working it is wrong that Iron & Steel Works should have to put down large stocks of coal in the hot weather and lift them again in the rains.

From the point of view of labour supply the Iron & Steel Works are short during the rains and therefore find reloading coal at this time of the year a difficulty. In any case, the successful development of the coal industry must depend on its being fully mechanised and therefore on its not being operated as a seasonal industry and the Railway Companies must therefore provide sufficient wagons to cater for the regular needs of coal throughout the year. There is a limit to the stacking of the coal in any Works.

Question 24.—Installation of mechanical coal-cutters has replaced manual coal getting to some extent. To mechanise to the fullest extent a good Electric Power Supply should be arranged by Government to enable all collieries to have an adequate power supply at all times of the year thereby reducing the excessive boiler consumption which more or less exists at all collieries. This supply of good coal may be conserved for use in industry.

Question 25.—Rails should be laid to the working faces.

VI.—RAILWAY COAL REQUIREMENTS

Question 26.—Under no circumstances should coal suitable for metallurgical purposes be allowed to be consumed by the Railways whether the coal comes from their own collieries or from outside markets.

Question 27.—No comments.

Question 28.—We understand the Railway Loco Standards Committee designed heavy locos to use high ash low grade coal.

Question 29.—No comments.

Question 30.—No comments.

VII STOWING

Question 31.—The Coal Mines Stowing Board has achieved some success but for the country to achieve the best mining results more compulsory stowing must be considered.

Question 32.—All this information is obtainable from the Sand Stowing Board.

VIII.—MISCELLANEOUS

Question 33.—Acquisition of surface rights for colliery purposes should be facilitated. A separate Authority should be appointed to deal solely with these matters.

Question 34. Briquetting of coal dust is certainly possible and its commercial possibilities must depend on the price of coal. It is not likely that coal will revert to the extremely low prices of 1931/33. If coal could be briquetted cheaply it could in part replace soft coke as a domestic fuel, but there is little outlet for briquettes in this country, and we have no knowledge of any experiments having been carried out excepting that briquettes were made at Dandot Colliery in Northern India many years ago.

Question 35.—We have no information in regard to the results achieved in washing of coal in this country. With the inherent ash of many coals washing will be difficult. Nevertheless, there may be certain coals which may wash fairly easily. It is all a question of the yield of low ash washed coal which can be obtained from raw coal. If economic washing is possible it would be a great help to the industry of the country. The subject calls for close investigation and research.

Question 36.—A Fuel Research Institute should be established. This will meet a long-felt want in industry and will allow the steel industries to obtain their requirements for the best type of blended coals.

Question 37.—Large scale recovery of benzol was not done in this country owing to the excise on motor spirit which made the recovery of benzol as motor spirit uneconomical. In England there is no excise on motor spirit produced from the coke oven plant. Large plants were erected by Government at the Works of the Tata Iron & Steel Co. Ltd. and the Indian Iron & Steel Co. Ltd., for the recovery of toluene and motor spirit during the war. If these plants do not continue to operate then the benzol instead of being removed from the gas will be burnt. In our opinion motor spirit produced by recovery from coke ovens should not be subject to the excise applied to petrol.

Question 38.—Rescue work in India is still in infancy and should be encouraged as much as possible on the same lines as in Britain.

Question 39.—Educational facilities are very poor. Facilities should be commenced as soon as possible by the Coal Mines Welfare Association.

Question 40.—Better living conditions should be given and this should also have the immediate attention of the Coal Mines Welfare Association.

QUESTIONNAIRE II

I—CONSTITUTIONAL

Question 1.—Central Government should regulate mines and mineral development and control the production and distribution of coal, and rents, rates, royalties and other cesses.

Question 2.—One Central Government Department to deal with all matters pertaining to the Industry would be advisable.

II—ECONOMICS OF THE COAL INDUSTRY STRUCTURAL ORGANISATION OF THE INDUSTRY.

Question 3.—In respect to Managing Agents and Consumer Interests, yes, but in regard to small privately owned collieries, it would appear they may not have the necessary finance available or able to employ technical experts for the proper method of winning coal.

Answer.—Any form of control of vested interests is liable to abuse but properly conducted operation of responsible Managing Agents offer great advantages particularly in respect of finance, economical and efficient working.

Question 5.—See Answers to Questions 3 and 4.

Question 6.—Through the Railways owning their own collieries they have been able in pre-war years to bring down the prices of coal in the open market to an uneconomic level for the Mining Industry to adopt a progressive policy for future development.

OWNERSHIP AND MANAGEMENT

Question 7.—It may be advisable that an Authority should be appointed to examine all coal mining leases and revise where it is thought necessary to ensure the economic and safe working of all seams of coal enumerated in such leases.

Question 8.—No.

Question 9.—Yes.

Question 10.—Private ownership should continue but the State should exercise Control over production, distribution and marketing.

FINANCE

Question 11.—No comments.

Question 12.—No comments.

PRODUCTION

Question 13.—1936—1 : 2·69.

1939—1 : 1·99.

1945—1 : 3·20.

Question 14.—By further mechanisation and having a settled educated and skilled labour force on each colliery more output would be obtained.

Question 15.—Where labour is difficult to obtain the employment of coal raising contractors tends to improve output. Where contractors were not under strict control the system has in some instances resulted in unsystematic mining. This state may have improved as much stricter control is being exercised.

Question 16.—If a constant supply of mining machinery is made available to the industry together with a sufficient supply of electric power the deficit will be minimised by the labour available. If the individual labourer would produce more coal there should be no deficit whatsoever.

DISTRIBUTION AND MARKETING

Question 17.—A Central Marketing Agency would appear to offer advantages but because of the conflicting interests of large and small producers and consumers it is doubtful if such an arrangement would operate efficiently on an entirely Voluntary basis and some form of Government control may be desirable. In any event, we feel it is not possible until Research is considerably developed in regard to availability, quality and individual industrial requirements.

Question 18.—There should most definitely be a complete regulation of the use of different coals for different purposes. War-time practice has functioned satisfactorily and this arrangement could be a basis upon which to work in the future. We agree that a complete analysis of all Indian coals is a condition precedent.

Question 19.—See reply to No. 18 above.

Question 20.—The colliery company who supplied the coal should be responsible for the correct coal being despatched.

Question 21.—Steam Coal . . . above 2"
Rubble Coal . . . above $\frac{1}{2}$ "
and below 2".
Dust or Slack Coal . . . below $\frac{1}{2}$ ".

TRANSPORT

Question 22.—Coal wherever possible should be distributed on a zonal basis and should be taken from the nearest mining area.

Question 23.—A pooling system would be advantageous.

Question 24.—The fixation of rail freight on a uniform basis for all qualities of coal should be continued.

Question 25.—No comments.

Question 26.—Wherever it is possible to load trainloads of coal to one consumer from the one colliery some allowance or reduced freight to the colliery company should be considered.

Question 27.—No.

Question 28.—We agree that there could be more efficient distribution of available wagons if the E. I. R. and B. N. R. wagons were pooled. As a case in point we cite our Hirapur Works, which is fed by Burnco Siding E. I. R. and Burnpur Siding B. N. R. The pre-war rule was that wagons received *via* one siding had to leave by the same siding whether full or empty. This meant that wagons worked down from Jharia on the E. I. R. to Burnco Siding with coal were sent out empty from the Works *via* Burnco Siding and had to be worked *via* Asansol and then again through Burnpur to feed collieries on the Asansol/Adra B. N. R. line and a minimum loss of two wagon days per wagon occurred. In April 41 it was decided that wagons received loaded *via* E. I. R. could be despatched loaded or empty *via* B. N. R. and this delay was stopped.

PRICE AND PROFITS

Question 29.—Free competition is not desirable. Fair minimum prices should, however, be fixed to allow the mining industry to be run on economic lines so that future development with a degree of certainty can be carried out.

Question 30.—Yes.

Question 31.—Price fixation worked satisfactorily during the war period and a similar type of machinery could be set up in the future to deal with prices.

Question 32.—Prices should be on a sliding scale using Selected Grade Coal as the standard.

Question 33.—It is doubtful if this can be calculated on a specific basis owing to the widely differing costs of mining in individual collieries.

In regard to allocation of profit, apart from the higher cost of operating Quality coals, coal mines are a wasting asset and only a percentage of the total coal in a mine can be ultimately won.

Question 34.—Middlemen's profit could be very much minimised if the consumers dealt with the Colliery Companies or Managing Agents direct.

TAXATION

Question 35.—No comments.

NATIONAL AND INTERNATIONAL COMMERCIAL POLICIES

Question 36.—No comments.

Question 37.—No comments.

CONSERVATION OF HIGH GRADE METALLURGICAL COAL

Question 38.—The term "metallurgical coal" is a loose one and must include coals which are directly required for metallurgical production whether such coals are coking coals or not. The term, however, is usually used to mean a coal which will produce a metallurgical coke and we would define such a coal as—

"A coal which, when subjected to destructive distillation, yields a hard coke

preferably of low ash content, with a fine porous texture and sufficient mechanical strength to resist abrasion or breakage in the course of the metallurgical process in which it is used."

Question No. 39.—In 1938 we were using for coking purposes Jharia coals, Selected Grade and Gradel—i.e., up to 15·00 per cent Ash at that time. At the present time we are using Jharia coals mixed with some Ramnagore with ash contents according to the new grading as high as Grade I—i.e., up to 20·00 per cent Ash—at Hirapur. At Kulti we are forced to use Grade II coal, with ash up to 24·00 per cent.

There has been a steady deterioration in the ash content of the coal supplied for coking over the last 20 years. The figures for the average ash of the coal as charged to the coke ovens at Hirapur Works will illustrate this. Against these figures are also shown the maximum average ash of coal charged to ovens on any one day.

Years	Average ash of coal charged to ovens	Maximum ash of coal charged to ovens on any one day during the year
1923	15·33%	..
1924	13·55%	..
1925	13·93%	..
1926	12·71%	..
1927	13·44%	..
1928	14·17%	..
1929	14·05%	..
1930	14·12%	..
1931	13·47%	..
1932	13·14%	14·67%
1933	13·39%	15·50%
1934	13·86%	16·40%
1935	14·21%	16·00%

Years	Average ash of coal charged	Maximum ash of coal charged to ovens on any one day during the year
1936	14·53%	15·70%
1937	14·68%	17·80%
1938	14·68%	17·60%
1939	14·76%	17·60%
1940	14·22%	16·98%
1941	13·95%	17·60%
1942	14·36%	22·50%
1943	15·06%	19·70%
1944	15·84%	23·70%
1945	15·86%	23·20%

It will be noted that the ash in the coal was markedly low during the period 1931/34 when trade was slack.

The reason for the change is the relaxation in ash content allowed by the Coal Control Authorities during the war. This has had a most adverse effect on our oven plant generally and on oven and blast furnace operation, and we are attaching a separate note dealing with this point.

Question No. 40.—We give below statements showing the receipts of coking and non-coking coal at our Hirapur and Kulti Works, and also the quantities of coal which were used for coke making or other purposes. At Hirapur coal which was not used for making coke was used for boilers, locos, and miscellaneous purposes. At Kulti coal not used for coke making was used for foundry purposes. It will be noted that during 1943 and 1944 certain tonnages of coal were despatched from Kulti to the Tata Iron and Steel Co., Ltd., on instructions from the Coal Controller.

HIRAPUR (ROUND TONS)

Year.	Receipts			Consumed		
	Coking	Non-Coking	Total	For Coke Making	For Boilers, Locos, etc.	Total
1936	635140	150	635290	707909	7264	715173
1937	651166	16575	667741	633385	13457	646842
1938	574370	6940	581310	456323	19088	475411
1939	501816	12788	514604	550684	22427	573111
1940	791620	17118	808738	770416	31952	802368
1941	794737	27441	822178	801897	34644	836541
1942	724051	37207	761258	737096	45002	782098
1943	618620	71748	690368	587875	39710	627585
1944	674523	45871	720394	681088	80290	761378
1945	713987	43264	757251	695986	66343	762329

KULTI (ROUND TONS).

Years.	Receipts.				Consumed.		
	Coking	Non-Coking	Total	Coke Making	Foundries	Boilers Locos and Mis.	Total
1936	369077	..	369077	345258	16144	17085	378487
1937	366083	..	366083	330714	17283	23366	371363
1938	354260	..	354260	260538	15282	26509	302329
1939	337622	3480	341102	340389	14112	33180	387681
1940	301206	835	302041	230702	15900	35430	282032
1941	365271	..	365271	322268	9304	48043	379615
1942	298496	..	298496	278802	10666	43360	332828
1943	257733	7548	265317	170330	11551	48693	{ 12044* 230574
1944	109337	11079	120416	83029	13948	33655	{ *11124 130632
1945	89519	11081	100600	40120	18281	34924	93325

*Despatched to Tata Iron and Steel Co. Ltd. on instructions of Coal Controller.

Question No. 41.—We give below a statement showing the total coking coal received at Hirapur and Kulti Works, the quantities of this which were supplied from our own collieries, and the latter as a percentage of the former.

COMBINED TOTAL TONNAGES OF COKING COAL RECEIVED AT HIRAPUR AND KULTI WORKS.

	(a) Total Coking Coal received.	(b) Received from own Collieries.	(c) (b) as a % of (a)
1936	1004217	134743	13% approximately
1937	1017249	161882	16% "
1938	928630	110398	12% "
1939	839438	85562	10% "
1940	1092826	116379	10% "
1941	1160008	111065	9% "
1942	1022547	117633	11% "
1943	876353	86064	9% "
1944	783860	174728	22% "
1945	803506	229064	27% "

A Statement showing the total raisings of our own collieries is also given. Against this is shown what was despatched to the Hirapur and Kulti Works. The remainder was sold as sale, a substantial portion being used by our associated company. The steel Corporation of Bengal Ltd., for steel production, and also for gas producers of Messrs Burn and Co. Ltd., Howrah.

	Raisings	Sent to Works and mines	Sales
(Expressed in round tons).			
1936	271970	152125	120288
1937	270746	180116	93217
1938	260488	131450	122781
1939	371867	121587	235259
1940	412412	157348	246315
1941	428146	160842	257778
1942	347150	154369	193761
1943	317889	121246	200250
1944	343015	208842	135916
1945	355973	264477	89813

Question No. 42.—Working on full capacity we estimate our coal requirements over the next five years as follows :—

	For Coke Making	For Foundries	For Boiler and Misc. purposes.	Total Coal
	Tons	Tons	Tons	Tons
1946	1116000	18000	120000	1254000
1947	1116000	18000	120000	1254000
1948	1880000	18000	180000	2078000
1949	1880000	18000	180000	2078000
1950	1880000	18000	180000	2078000

Question No. 43.—The total quantity of coal required could not be reduced by blending. At the present time we have no facilities for blending but the new coke oven plant which is now being constructed will provide for this. As regards washing, we have no information as to what success has been achieved with this in this country, and we are therefore unable to advise what saving, if any, could be effected by adopting this process.

Question No. 44.—We can only speak for the Hirapur and Kulti Works of this Company. At these Works, we believe that, with the reorganisation now being effected, coal will be used in the most economical way possible. Wasteful methods in foundry operation, such as mould and coke drying, are being eliminated. Our Fuel Technologist, who is also in charge of fuel technology for the Steel Corporation of Bengal, is an expert, and fully in touch with what is being done at Works abroad.

Question No. 45.—As India has very large deposits of metalliferous ores, from which the metals can only be extracted most economically by the use of the best possible coke, and as reserves of coking coals are small, there is in our opinion a definite case for restricting the use of the so-

called metallurgical coals for metallurgical purposes only.

Question No. 46.—Yes, but other industries and railways would also have to be looked after and the process of restriction might therefore have to be gradual.

Question No. 47.—The restriction would have to be the result of legislation but we are not able to suggest how this should be enforced at present.

Question No. 48.—With Iron and Steel Works now operating and the possibility of further extension contemplated in Post-war Schemes, it is doubtful if such a situation would arise in any major degree, but if it did then presumably the consumers would be expected to pay a higher cost.

Question No. 49.—If mining and correct distribution are adequately controlled under present legislation State ownership and control need not be necessary.

IV—CONSERVATION OF HIGH GRADE STEAM COAL

Question No. 50.—Coal having an ash content exceeding 10 per cent.

Question 51.—It is just as not important that steam coal should be classified as it is for coal to be classified for metallurgical purposes. High grade steam coal has been used in the past where low grade coal might have been used to advantage—i.e. Railways.

Question No. 52.—It must always be borne in mind that the resources of high grade steam coal in this country are strictly limited and conservation is therefore very necessary.

Question No. 53.—See Answer to Question 49.

V.—CONSERVATION GENERALLY

Question No. 54.—Where systematic depillaring is being carried out 70% to 75% and with sand stowing 85% to 95% of coal is extracted. There has been a decided improvement in recent years owing to regulations having been drawn up to govern sizes of pillars, galleries, etc., in the first working and in most collieries more systematic mining is now being carried out.

Question No. 55.—The existing regulations are adequate for securing the maximum extraction of coal.

Question No. 56.—There should be no rotation of working. Rotation should be left to the decision of the Management.

Question No. 57.—Stowing should be definitely enforced for conservation purposes for all coal of a commercial value to the country. The cost should be borne by a Cess on the Mining Industry

Question No. 58.—Government should undertake the delivery of sand for stowing purposes, and should acquire sand rights. Only collieries situated conveniently near sand supplies have been able to resort to sand stowing. There are many collieries, however, situated at distances away

from the source of supply where it is necessary for safety and conservation to sand stowing but cannot do so owing to the high cost of transportation for each individual colliery. By Government undertaking the delivery of sand all collieries will have equal facilities.

Government should be able to take over the existing sand arrangements at a valuation figure and incorporate these present scheme into a scheme for the delivery of sand to all collieries. The same reasoning applies to the sand rights.

Question No. 59.—Lessors should be made to share in the cost of stowing whether it be from a safety or conservation point of view. Their share should be a part of the cess levied.

Question No. 60.—No.

Question No. 61.—Not to our knowledge.

Question No. 62.—It is most desirable that the installing of a Central Power Station burning a low grade coal should be seriously considered. There would be a considerable saving of boiler consumption at each individual colliery.

Question No. 63.—The present method of producing soft coke by burning in heap is wasteful in fuel and all bye-products are lost. It is an uneconomical way of using the country's resources and should be prohibited.

Question No. 64.—The use of crude tar for fuel and other purposes, whereby the valuable distillation products of tar are lost, cannot be justified if there is a demand for the development of these products e.g. for the production of dyes. This would also apply to the use of crude or merely dehydrated tar for road work.

VI.—MINING LEASES & FRAGMENTATION

Question No. 65.—No comments.

Question No. 66.—All leases should contain the right for Instroke and Outstroke workings so that coal valuable to the country would be available.

Question No. 67.—No comments.

Question No. 68.—Government should take power to fix standard or maximum rates of royalty.

Question No. 69.—1. Joint Family System.

2. Disintegration of inherited property.

3. Mortgage.

Question No. 70.—The existence of uneconomic colliery holdings is undesirable in the national interest. By having such holdings valuable coal may be lost for ever to the country by unsystematically working the holdings in the first place.

Question No. 71.—Voluntary schemes of amalgamation are suggested but if this is found to be unsatisfactory legislation should be passed to enforce amalgamation.

VI.—OPENING OF NEW COALFIELDS

Question No. 72.—No comments.

VIII.—ADMINISTRATIVE MEASURES

Question No. 73.—Should be under Central Government.

Question No. 74.—A Statutory Authority might be appointed to deal with these matters.

Question No. 75.—Regarding health and sanitation the two Mines Boards of Health operating in Raniganj and Jharia Coalfields have done excellent service. It is too early yet to give any views regarding the present new Welfare Schemes as welfare is only in its infancy.

Coal for Making Blast Furnace Coke—

(Referred to in reply to Q. 39)

The term "metallurgical coal" is now being frequently used. It is usually intended to refer to coal suitable for making "metallurgical coke" for use in blast furnaces making pig iron, and this note deals with this aspect only "coke for Indian blast furnaces".

A good coke for Indian blast furnaces must possess the following properties :—

1. Mechanical strength to resist crushing.
2. Hardness to resist abrasion.
3. A high proportion of fixed carbon.
4. High porosity to facilitates blast penetration.
5. Preferably an ash with a low fusion point.
6. Low impurities such as sulphur and phosphorus which are harmful in iron and steel.

The properties given above are in their order of essentiality to meet the requirements of Indian blast furnaces and, whilst the first four points are necessarily inter-related, nevertheless the degree to which any one of them increases or decreases must be regarded as an indication of suitability or unsuitability of the coke concerned for blast furnace use.

These points concern the practicability of operating a coke blast furnace and the cost of doing so economically. But another matter.

This aspect of the question is one of which for too little is heard, and the tendency is to forget it and to consider only what properties the Blast Furnaceman wants his coke to have. This was possible in the days of old, wide, short, slow-coking ovens, taking probably 40 hours or more to coke, and with fire-brick walls. The modern coke oven is entirely different. It consists of silica walls, carried at a high temperature and subject to violent thermal shock every time a charge of coal is put in. The coking operation is speeded up and the capacity increased by the oven being much narrower, longer, and taller than the old oven. Heating has to be finely controlled and, above all, coal quality must be controlled to ensure that the coal charged is of such a nature that it will coke into a coherent mass which can be pushed cleanly from the oven. Unless, therefore, India can be assured of supplies of coal to satisfy this requirement, India will not be able to use modern coke ovens, and it is essential that these should be used for economical exploitation of the country's ore resources.

A coal to make a coke to meet Blast Furnace requirements as outlined and to meet the operating requirements of modern coke ovens must possess the following qualities :—

(1) It must not swell to any marked extent when being coked.

(2) It must form a hard, coherent mass of coke and have a porous texture.

(1) As regards swelling properties of the usual Indian coking coals, we have found that the effect of this can be controlled by suitable mixing, and careful blending should provide necessary control in the future.

(2) In regard to coking, or coking properties of coals, the matter is far more serious. These properties are indicated by a "coking index", the higher the coking property, the higher the index figure. In English practice coking indices run about 16 to 18. In India 15 is a good figure, and many coals run 12 to 14. Pre-war it was usually possible to run on a fairly steady coking index of about 14. It is, however, very definite that, with increase in ash, coking properties of a coal rapidly decline.

contrary to the general impression, it is as essential to keep ash content down for the proper operation of coke ovens as for the economical operation of blast furnaces. The answer to question 39 shows the increase in average ash of coal charge to ovens and also the maximum ash in coal charged on any one day. Serious damage was done to the Hirapur ovens in 1944 and 1945. In 1943 a total of 189 ovens received repairs, including 80 ovens which were given very extensive repairs to carry them through the next few years. Yet in 1944 220 ovens were repaired and 348 in 1945. The tonnages of silica used on running repairs only on these batteries were:—

1941	83 tons
1942	143 tons
1943	234 tons
1944	241 tons
1945	280 tons

The "stickers" caused on the ovens were the result of irregularity in quality. When quality of coal supplies is questioned, the argument frequently put forward by a supplier is that the "average over the month" is satisfactory. This cannot be accepted. Both coke oven and blast furnace plants depend for their safe and economical operation on regularity of quality of input at all times. The irregularity of quality of coal going into the ovens is illustrated by the print attached "Variation in V. M. (Volatile Matter) of coal from Charging Car". The figures cover a special test period in November 1944, but are typical of today also. The sheets showing variation in ash of coke to the furnaces clearly indicate how coal ash also varies.

We are at present commencing the construction of a new coke plant at Hirapur. Reporting on the plant which this will replace, and on the necessity for an improvement in coal quality for the new plant, we cannot do better than quote the report of the Director of Messrs. Simon Carves Ltd., who are the designers and constructional engineers of this project.

"One of the reasons for the poor condition of the oven walls in the old plant is inferior coal, the use of which has caused the flue bricks on the ram side in several ovens to be pushed in.

"The first new battery will not be in production (based on present indications) for about 2½ years and it will be necessary for batteries 1 and 2 to remain serviceable for probably longer. To enable this to be done.....

.....a vigorous attempt must be made to improve the quality of the coking coal now being used. If this is not achieved I can hold out little hope that these batteries will remain at work until the new battery is in production.....

"In my report on Kulti I have made reference to the poor quality of the coal charged to the ovens and its effect on their probable life. The situation at Hirapur is precisely similar, but the effects will be more far reaching. I wish

make it unmistakeably clear that unless there is an immediate and substantial improvement in coal quality, particularly in respect of ash content and coking properties—

(a) The possibility of keeping the old ovens in work until the new plant is ready is extremely remote.

(b) We cannot advise you to take the risk of charging the coal to the new ovens.

"In these circumstances I suggest you approach the appropriate authorities, or take such other steps as you may consider effective in improving the quality of your coking coals."

Blast Furnace Coke—

The properties of Blast Furnace Coke are given above.

(1) *Mechanical Strength*—Indian blast furnaces generally are large units, designed for high production. The coke therefore has to carry the very heavy weight of the column of raw materials and mechanical strength is essential. A weak coke will break up and large furnaces will not operate satisfactorily with it.

(2) *Hardness to resist abrasion*—Unless a coke has this property the abrasive action as it works down a blast furnace causes a great deal of breeze to be formed. This impedes the passage of gases in the furnace and causes irregular working and waste.

(3) *High Fixed Carbon*—As the operation of the blast furnace depends on the rate at which it can burn carbon it follows that, other things being equal, the higher the percentage of carbon in the coke, the better—i.e. the lower the ash, the better.

(4) *High Porosity*—It is necessary that coke, in addition to being strong, should also be porous, so as to allow the maximum penetration of blast and gases to ensure combustion.

In Indian practice it is confirmed that high ash has an advance effect on all the above four requisite properties. It is sometimes stated that the high ash of Indian coals makes a strong coke, suitable for Blast Furnace work. This is incorrect. It is definite that a high ash coal results in a coke with less resistance to abrasion and therefore less suitability for Blast Furnace work.

As regards ash fusion point and low sulphur and phosphorus, Indian coals are satisfactory, except that it is not possible to make irons with phosphorus below about 25% using coke made from Jharia coals.

The necessity for regularity in content in a furnace coke is obvious. This implies regularity in ash content. The coals which have been supplied under the Coal Control and more particularly since the Grading was revised, have varied widely. To investigate conditions obtaining after this was introduced, special sampling was undertaken every hour over a period in November 1944. Prints of the results obtained are attached and indicate the extent to which variations occurred and have continued to the present time. Much of this variation in quality could to be avoided by careful picking at collieries.

Wagons arrive containing large lumps of stone and shale which can only be left indeliberately.

The effect on furnace operation of high ash coke is given below. The period October and November 1943 is compared with November 1944, the month during which special attention was given to sampling as shown by the charts referred to above.

	Average per day for period good coke - Oct. & Nov. 1943 ASH 21.70%	Average per day for period bad coke - November 1944. ASH 23.60%
Iron produced . . .	1490 tons	1332 tons
Coke per ton iron . .	2167 lbs.	2341 lbs.
% Ash in coke . . .	21.70%	23.60% (max. up to 26.20%)
Limestone per ton iron .	760 lbs.	850 lbs.
Slag per ton iron . .	1026 lbs.	1096 lbs.

The reduction in iron production was 10.07%, equivalent to 57,670 tons per year.

The increase in coke consumption assuming average output of iron was 8.0%, equivalent to 41,973 tons per year.

The increase in limestone consumption assuming average output of iron was 11.8%, equivalent to 21,900 tons per year.

In addition to loss of production, the physical properties of high ash coke cause serious operational troubles, resulting in fluctuating quality of iron, a large proportion of which did not conform to the required specification for steel making.

Production of Basic Iron for Steelmaking—

Iron for Basic Steelmaking should contain below 1.0% Silicon. Due to the poor quality of coal our Blast Furnaces have not been able to keep down to that figure and latitude has been allowed up to 1.50% Silicon. Even on this basis the following figures will illustrate the difference over two periods when the coke ash was 23.00% compared with 20.50%.

	With coke ash 20.50%	With coke ash 23.00%
Percentage of Metal to Steel Works above 1.50% Silicon.	.72%	34.65%

This note makes it clear that for India to exploit satisfactorily her iron ore reserves it is essential that the best quality coking coals must be used. As reserves of coking coal are meagre any use of coking coal for purposes other than coke making must be regarded as prejudicial to the development of the metallurgical industry.

ORAL EVIDENCE OF MESSRS. H.V. PEELING, A.G. MACKAY AND W. WALLACE REPRESENTING THE INDIAN IRON & STEEL CO., LTD.

Question.— From the point of view of steel works, what are your views about the stoppage of export of metallurgical coal?

Answer.— The interests of the steel companies should not precede international interests, if it is possible to prohibit export of coal without international repercussions it should be done. But knowing that the reserves of metallurgical coal are limited, there is obviously a case for conservation.

Question.— Is the present method of coal grading satisfactory, and should it be adopted in respect of coal for internal consumptions?

Answer.— We have no objection to the method of grading adopted at present. We are in favour of compulsory grading of coal for the internal market. I think all uses of raw materials should be controlled as national assets, particularly so in the case of a rapidly dwindling asset such as coal.

Question.— If your suggestions for ensuring regularity of supply of coal to iron & steel works are adopted, it will involve considerable expenditure and an eventual increase in railway freights. What would be your views on this?

Answer.— The industry as a whole would have to meet any increase in freights that is conducive to greater efficiency. If traffic increases as a result of efficiency, freights could ultimately be reduced.

Question.— You have suggested that Sunday loading at collieries should definitely be abolished. Will not the stoppage for one day complicate traffic movements?

Answer.— The majority of consuming interests work 6 days in the week. From the point of view of consumers like the steel works who work all the seven days in the week, it would be preferable to have loadings during seven days, but from the collieries point of view, 6 day loading would be desirable.

Question.— What do you consider as a fairly large tonnage to qualify a colliery to have a weigh-bridge?

Answer.— I should think about 14 to 20 thousand tons a month would be a reasonable tonnage. In our opinion it is practicable to group small collieries together and provide a common siding for them. This should meet the attitude of railways that they should be assured of a certain offtake every day.

Question.— In view of the large quantity of coal you consume, have you any intention of developing research in connection with the utilisation of your own coals?

Answer.— We started a Fuel Technology Department in 1939. We intend converting the Fuel Technology Department into a Fuel Research

Department within the next two years. We have done a great deal of experimental work on the mixing of coal. The results could not be applied as a commercial proposition without a large blending plant. We have heard about recent developments in other countries regarding the utilisation of high ash coal in a newly designed type of coke ovens, but have no details. We agree that it is extremely desirable that the steel works should devote considerable attention in future to research on the use of various types of coal available.

Question.—Are you developing your collieries to meet your full requirements?

Answer.—We have developed the collieries to the maximum possible extent. We propose maintaining our output by means of mechanisation.

Question.—Is a close alliance between units of coal production and consuming interests a healthy factor from the point of view of the industry as a whole?

Answer.—I would say that it is, provided it does not tend towards monopolistic practices. There can be no objection to large consumers of coal owning their own collieries provided they use the coal for their own purposes.

Question.—Suggestions have been made to us, in connection with the Railways *vis-a-vis* their collieries, that these collieries should be restricted in their output to provide the railways with only a small percentage of their requirements, the rest of their requirements being met from the market. What would be your comment on similar suggestions in regard to the coal requirements of the steel works?

Answer.—I think it is desirable that a portion of the requirements should be got from the market collieries. As a corollary any big consuming interests owning coal properties for supplying their needs should not be allowed to dispose of their coal for other purposes. I agree that both these necessitate a measure of control over coal distribution.

Question.—You appreciate that conservation of coal may demand very drastic curtailment of output and possibly payment of recurring compensation to the present colliery operators. Government may consider that payment of such recurring compensation is unsatisfactory, and that it is better to take over the coal mines. Would you agree to such action?

Answer.—Yes.

Question.—Would you have any objection if all the steel companies were made to put their collieries in a pool?

Answer.—If all collieries producing metallurgical coal are pooled, I should have no objection.

Question.—It has been suggested to us that if any curtailment of production of metallurgical coal is given effect to it should start first with the collieries owned by the steel companies and not with the general market collieries.

Have you any comments on the suggestion, as this step would be essentially in the interests of the steel industry?

Answer.—I do not see the justification for this step.

Question.—Assuming that national interests demand the conservation of metallurgical coal and no other way is found except to pool all the coal properties bearing metallurgical coal, do you think there would be a case for compensation to the steel companies on the same level as private companies, particularly when the pool system is primarily for the benefit of the steel producers?

Answer.—I would say that there is a case for compensation.

Question.—Is there to-day a general disinclination of the individual mine worker to do more than his particular spot of work? And have you any ideas on wages?

Answer.—Labour is not cutting the same amount of coal to-day. But I do not agree with those who say that this loss of output has anything to do with his general physique or malnutrition. Talking of the workers of my own collieries, since we started supplying rations at cheap rates, the health of the miner has considerably improved. Any future increase in wages should be linked up with production.

Question.—Would you be inclined to consider the fixation of a minimum wage, not in terms of cash payment, but in terms of the actual needs of the labourer, and made applicable to all coalfields?

Answer.—I see no reason why there should not be a minimum wage. I think it is practicable to have uniformity in rates of wages throughout the coalfields.

Question.—You have stated that, if there is control over the prices of coal supplied to railways and steel companies, it would ensure stability in prices. Your sister company is of the view that control of prices of these two consumers only will lead to confusion and increase the instability of the industry. Do you agree?

Answer.—On reconsideration, I agree that there should be all-round control.

Question.—Is it your suggestion that coke-ovens are affected if the ash content in coal varies, say, from 12 to 18% and this will give more trouble than if you were supplied uniformly with coal of an ash content of 20%?

Answer.—You get more trouble with the varying ash content from 12 to 18% than with a regular ash content of 16%.

Question.—What do you reckon as the deadline for ash in your coke ovens, i.e., the maximum ash on which the coke ovens will work efficiently giving the maximum production?

Answer.—16% ash in the coal definitely. If the ash content increases to 18% it will affect the walls of the coke ovens and is bound to affect blast furnace operation. I consider that the high ash content of coke in 1944 was responsible for a reduction in iron production by 10%. One of

the big troubles about Indian coke is that its porosity is somewhere about 33% whereas in the case of British and American coke the average porosity is in the region of 47 to 50%.

Question.—We find that your collieries have not been able to supply more than on an average 15% of your requirements in pre-war years. What was the reason for your not consuming the entire output of your collieries in your own works?

Answer.—We had heavy commitments by way of long term contracts. Our present policy is to use the whole of our output for our own use. This is a firm policy, and when controls over distribution are removed, we will give effect to that policy.

Question.—Have you bought any coke from outside?

Answer.—Not for a long time, but recently we have bought 10,000 tons of coke. As far as possible iron producing concerns must be self-sufficient in the supply of their coke to enable them to have integrated plant. We are rather short of our requirements at the moment.

Question.—Should an attempt be made to set up independent units of coke ovens to meet miscellaneous demands for hard coke, or should the steel works be asked to increase their coke oven batteries to meet these demands, in the interests of economy?

Answer.—In my opinion it is not advisable that the iron and steel companies should produce coke for purposes other than for iron works.

Question.—What seams would you recommend for conservation for metallurgical purposes?

Answer.—18, 17, 15, 14, 14A, certain portions of 13 and 12 and small portions of 11 and 10 seams. I do not think that the other coals which, by washing, could be used as a blend need be conserved, unless it is absolutely necessary.

Question.—Is there any case for conservation of high grade steam coals such as Poniat and Dishergarh?

Answer.—Yes, there is.

Question.—Would you agree with me that much research has not been done on the quality of the iron ore which is used in your blast furnances?

Answer.—I think so.

Question.—Is it desirable to start some investigation side by side with investigation into the physical and chemical properties of coal, into the types of iron ore which is used for smelting?

Answer.—I do not think there is any necessity for investigation into the quality of iron ore. Ore cannot be changed, and we have to smelt it to suit us. But I do agree that the chemical nature of the coal as well as the physical nature of the coke are worth investigating.

89. WRITTEN REPLY SENT IN BY THE STEEL CORPORATION OF BENGAL LTD.

With regard to Question No. 1, we submit the following answer, which we think, covers the points in question *i.e.*

- (1) What is your definition of metallurgical coal suitable for your requirements. Please give the properties, characteristics and composition of such coal.

In our case, the coals concerned are Gas Producer coals.

GAS PRODUCER COAL

The main item to be considered in specifying a good Producer Coal is the properties of the coal substance and secondly, the properties of the independent variables such as size, fusion, temperature of the ash, friability and sulphur content etc. It is apparent that many coals could be grouped as suitable accordingly to analysis, but quite unsuitable because insufficient consideration has been given to the above variables, which can be of such importance as to make a coal useless for Gas Producer operation, though otherwise quite suitable as regards coal substance.

The best coal for producer operation are those of low coking power which are sufficiently hard not to break down in the Fuel-bed and therefore, the limitation of coking power is of particular importance.

The sizing of coal used for Producer operation is also very important and should be as uniform size, whether peas, singles or doubles and should contain as low a percentage of fines as possible. Irregular sizing results in bad distribution of the air steam blast through the fire-bed, which adversely affects the quality and rates of gas production and producer operation generally.

Typical Producer Coal

Moisture A.D. Coal .	—1·0	—1·5 %
Fixed Carbon .	—61·0	—62·0 %
Volatile .	—28	—34
Ash .	—4·0	—5·0 %
Sulphur .	—1·0	or less
Coking Index .	—4	—12
Fusion point of ash .	—1350	—1400° C
Sizing between 1" & 2" or ½" to 1" (screened)		minimum of fines.

Few, if any of the known Indian coals come into the above category, particularly as the ash content is generally so high. Probably, the best gas producer coals so far as Indian collieries are concerned, are those coals with low coking and non-swelling index, mined in Dishergarh and Raniganj fields.

GRADING & EXPORTS

Reference to part 2 item (7)—any attempt at regrading of coal seams with a view to giving consumers a reasonably reliable and close indication to the nature of the coal, would be a definite advantage to industry when assessing the value of coals for the different industrial purposes.

If the grading of the seams is to produce data on which the value of coals can be classified into different groups, grading of sections of seams should be continued.

We think the above grading of coal seams is generally based on the volatile, ash content, and coking index of the coal and it is suggested that apart from these factors, further efforts should be made to give consumers a size grade classification too, even if this entails screening or crushing. Uniformity of size is a very important factor on which the efficiency of burning coal depends, and, in India the collieries have given far too little consideration to this point.

Part 2, item 8.—GRADING & EXPORTS—

Coal grading for internal use is very desirable and should be compulsory for all collieries.

Part 8.—Miscellaneous—

- (a) In view of the necessity for conserving coking coals, has consideration been given to experimental plant to investigate the position so far as coal blending is concerned, to obtain data for the reference of metallurgical coke producers.
- (b) Has any investigation been made regarding the gasification of gas coals in gas producers and the classification of such coals, most adaptable to the different types of gas producer plant. Consideration should be given to the relationship between coals

with varying characteristics, most of which contain a high percentage of ash of varying ash fusion points and comparing the performance of the coals under gas producing conditions, with regard to the respective producer dimensions, design and available grate areas, which is conducive to the most regular gasification rates.

Part 8.—Question 35—

This is a very important question so far as we are concerned and though we are not in a position to answer the first part of it, we should emphasise the very important significance to the Iron & Steel Industry of any method of lowering the ash content of Indian coals for metallurgical purposes.

Unfortunately, such limited experiments on a laboratory scale as we have made, lead us to doubt whether any economic method of washing could be devised for the particular coals in question and this has been confirmed by workers in our Associated Company.

The high specific gravity of the coal, the intimate dissemination of the ash throughout the mass and its variation in different size fractions make the problem one of great technical difficulty.

We should be glad to learn therefore of any success which may have been achieved in this direction on a practical scale.

The cleaning of coal would be one of the most important problems from our point of view for consideration by the proposed Fuel Research Institute.



Section XII



ELECTRICAL UNDERTAKINGS

90. ORAL EVIDENCE OF MR. W. U. WHITE REPRESENTING THE AHMEDABAD ELECTRICITY CO., LTD., RECORDED AT BOMBAY ON THE 17TH OF JULY 1946.

Question.—Could you please tell us about your projected developments, expansions?

Answer.—At the present time we are using about 11,500 tons of coal per month and with projected developments, which are well in hand, and provided the textile industry maintains its demand, I shall require 12,850 tons per month from January 1947; from October 1947 I would need 15,100 tons per month; and in 1951 I shall require 20,200 tons a month. At the present time I have a power station which I am extending; plant is arriving and will be in commission at the end of this year or early next year. I have had applications for power from mills who have already purchased the necessary electrical plant. Our present installed capacity is 30,000 KW.; by 1951 it will be 97,500 KW.

Question.—Roughly could you tell us how many lbs. of coal are needed per kilowatt hour?

Answer.—In January 1946 I burnt 11,300 tons of coal which represented 2.33 lbs. per kwh, which is very high. In 1938 with coal from the same collieries I was burning 1.9 lbs. per kwh. The reason for the increased consumption is the receipt of rubbish instead of good quality coal; the presence of a large percentage of dust, and the coal being entirely unsuitable for the work which it is expected to do. The ash content in 1938 was 19 per cent.; now it is nearer 23 or 24 per cent. The calorific value was 11,000 B. T. Us. in 1938 but now it is 9,600 B. T. Us. per lb. My load factor in the power station is 66.7 per cent. in 1946—in 1938 it was 50 per cent.

We get our coal from Jhagrakhand and Chirimiri collieries in C. I. and Datla, and to a certain extent Chandametta, from C. P. all slack coal. The coal delivered comprises lumps about 2" square mixed with 10 per cent. to 20 per cent. dust. The dust falls through the grates and consequently mingles with the ash and is never burnt. The ash content is so high that much of the carbon is also lost, being enveloped in lumps of fused ash. When burning 420 tons a day in my furnace, we often get 220 ton residue. This is made up of true ash, carbon enveloped in the ash, and dust which has fallen through the grate. In view of these complications waste is heavy.

Question.—Do you consider 1.9 lbs. per kwh. good performance?

Answer.—This is reasonable for the class of coal we are using. I can do better than that if I can get the coal in better condition. I want to get my coal screened to take out the dust and the big lumps. If this is done, I can save 18 per cent. on what I am burning now. We have a well-equipped Laboratory at the Power Station, where samples from every wagon of coal are tested. Also samples from every wagon of coal are alternatively tested by Messrs. Hughes and Davies, Bombay. Our tariffs are based on such tests.

Question.—You will then be quite content if you were to revert to C. I. and C. P. coals as supplied in prewar years?

Answer.—Yes, if they are screened. I want coal that is not greater than 3/4" in size and not smaller than 1/8". If you can give me such coal. I can cut down my consumption by 20 per cent.

Question.—In designing your boilers for the use of inferior grade coal from the C. I. and C. P., you very correctly anticipated the need for conserving better class coals. That suggests that an effort should be made to regulate the use of coal—different types of coal for specific purposes. Do you think from your large experience as user of coal that this suggestion is worth following up?

Answer.—Yes, it must be given serious consideration and the coal users should have their plants designed to use coal from the nearest source.

Question.—During war-time there has been some sort of a rough and ready method of zoning as well as controlled regulation of use, and from the figures you have stated, you have suffered considerably. So there must have been something wrong somewhere?

Answer.—Yes. In 1938 I was paying for my coal Rs. 13 per ton, whereas I am paying now Rs. 26 per ton, but the coal is at least 10 per cent. inferior to what it was previously.

Question.—But, apart from the price, the quality of coal which is being sent to you is not quite what you want. It has deteriorated since 1938?

Answer.—Yes.

Question.—This is a result, not a direct result but a consequence, of the distribution. You have the right to get the coal you require. What is the remedy you suggest for this?

Answer.—All I ask is that this coal should be screened.

Question.—I am asking you from the controlling angle. In what way can we secure to you the coal you want?

Answer.—If you send me coal from the same collieries from which I am getting it now, and if that coal is screened, that is all I am asking, and that will cover my requirements.

Question.—Does a solution of the present difficulties lie in setting up a Central Marketing Agency entrusted not only with the job of regulating the use of coal, that is a special kind of coal used for a specific purpose, but also seeing that the consumers at the various centres are provided with the type of coal which they should use.

Answer.—I am in favour of setting up a Coal Board or Committee, but not of a Selling Agency. I feel myself that unless the Selling Agency is in touch with the consumer of coal, knows what he wants and what he should consume, and where the wastage lies, it will never be a success. Coal is a peculiar commodity; only by experience can one find out where the coal suitable for one's job is available. You should leave it to the consumer to get his supply through his normal channels. But, if you create a Central Committee which can classify coal, and say what is exactly available in the different parts of the country, then consumers can buy what is most suitable for the plant they are going to operate.

Question.—What do you think is an economic price for coal delivered to you?

Answer.—I consider that coal of calorific value not less than 10,500 B. T. Us. per lb. should not be greater than about Rs. 18 per ton delivered in my power station.

Question.—In regard to the installed capacity what proportion of the supply goes to textile mills?

Answer.—80 per cent.

Question.—With the additional 30,000 KW. put in during 1947?

Answer.—About 70 per cent. and probably 10 per cent. to Bombay Government.

Question.—By the time your expansion is completed in 1951, you will have sufficient power to meet all the demands of the Ahmedabad Mill area?

Answer.—As far as I can see, we can just do it. If more power is needed, we may have to instal another power station. I believe Government is thinking of shifting some of the mills from Ahmedabad.

Question.—Is it a fact that the cost of generating electricity by individual mills is lower than the cost which they may have to pay to you if they take a connection?

Answer.—They may say so. If a mill installs its own prime mover, usually no stand by plant is provided. Therefore, when the prime mover has to be shut down for repairs, the whole industry has to be closed down.

The most efficient way of electrifying an industry is driving it by purchased power. The Power Stations get their coal delivered straight from the coalfields to the boilers, and surplus coal, if any, is stocked, mostly by machinery, whereas mills get their coal sent to the nearest railway station from whence it is transported to the mill by lorry, a costly and inefficient method of handling coal.

Question.—Today the textile mills are taking, about 52,000 tons of coal a month. Of course, they are your potential customers when you develop your power. You are supplying 80 per cent. of power, out of the 30,000 KW., to the Ahmedabad mills. This would represent, according to your figures, about 9,000 tons of coal a month. Would that mean only one-sixth of the Ahmedabad textile mills are served by your station?

Answer.—No. The proportion is about one-third, and by the end of next year I will be able to supply up to 60 per cent. of their requirements.

Please remember that the mills, when fully electrified, would require about 13,000 tons of coal per month for producing process steam.

Question.—Could you tell us briefly what are the special adaptations which have been made by you in the new boilers?

Answer.—Proper control of the draught, of fire in the furnace and of temperature of the flue, water and steam. That is the secret of success.

Question.—In your experience from the C. P. and C. I. coals, of course, subject to their being properly screened, which do you consider the most suitable coalfield?

Answer.—In the C. P. Datla, and in C. I. Jhagrakhand. Chirimiri too is a good coal.

Question.—Has the quality of the Datla coal also deteriorated during the war?

Answer.—All coals, including Datla, have deteriorated. To improve the quality of coal nobody should be allowed to mine coal and despatch it unless it is up to a prescribed standard. I have personal experience of coalfields in Bengal. Many collieries were bringing up all kinds of coal and selling them in the market—anything black passed as coal.

91. ORAL EVIDENCE OF MR. W. I. LAVERY OF THE MADRAS ELECTRIC SUPPLY CO., MADRAS.

The present coal consumption of the M. E. S. C. was approximately 80,000 tons per annum; we receive approximately 50,000 tons per annum from the Singareni Collieries, Hyderabad State, and 30,000 tons per annum from various collieries in Bengal. There is no spare boiler capacity at the Station; the Government of Madras have notified the M. E. S. C. of their intention to acquire the undertaking in 1947 and the question of increased boiler and generating capacity was under review at the moment. Regarding the question of increase in capacity necessarily meaning an increase in coal consumption this is a question that could only be answered when Government's intentions regarding extensions and inter-connection, if any, to the South Indian Grid were

known. Shortage of power and industrial expansion in various districts in South India indicate that an increase in coal consumption was very likely.

The M. E. S. C. favour zoning of supplies only if it gets our full requirements from the Singareni Collieries.

The main factor governing our choice of coal was size provided the coal was screened to a size $\frac{1}{8}$ " to 1" and clean differences in volatile content, calorific value and ash content were of little importance.

Our furnaces are designed to burn Singareni coals of a calorific value of approximately 10,000 B. T. Us. per lb. Bengal coals have a calorific value of 11,000 to 13,000 B. T. Us. per lb.

Coal from Bengal invoiced as rubble varied from fines to 12" cube and had to be broken down

to a suitable size by hand ; all coal from Bengal comes by rail.

We consider the price of coal to be far too high. Pre-war we dealt directly with collieries or colliery agents, now however with Bengal collieries we have to deal through a middleman who charges a commission of As. 12 per ton which we consider quite unreasonable. Without knowing much of the economics of coal raising we feel that pit-head prices for coal are too high.

We have no means of checking the grade of our supplies and have to accept what is shown on our bills ; it is desirable that the grade of coal be shown on invoices and railway receipts.

We have explored the possibility of using oil as a fuel, but initial expenditure was heavy for installing the necessary equipment and delivery from manufacturers was in the region of 18 months as such it again is a question bound up with Government's intentions after they acquire the undertaking.



Section XIII
STEAMER COMPANIES



92. ORAL EVIDENCE OF MR. K. P. SHAH AND MR. M. R. DAS REPRESENTING MESSRS. SCINDIA STEAM NAVIGATION CO. AND MESSRS. MACKINNON MACKENZIE AND CO. RESPECTIVELY.

Question.—The Committee would like some more enlightenment on the very high sea freight prevalent today from Bombay to Calcutta?

Answer.—(*Mr. Das*). The Conference Lines have given an undertaking to the Government of India that they will always give priority to essential goods and it happens that in consequence we have to make many uneconomic voyages. We carry large quantities of coal and the return freight from the West Coast to the East is extremely limited. In brief, we are unable to run our ships on the normal commercial lines. Secondly, as regards cost of operation, one or two little points will indicate the very great difference between pre-war position and the present position. Take *lascar's* wages for example.

Question.—As regards your first point, this paucity of cargo from the West Coast to the East is not a new feature in the history of Indian coastal shipping?

Answer.—(*Mr. Das*). It is. Much has been said about the railway freight which has been charged by the railways for many years to sea ports in relation to freight rates to places in the interior. Today one of the major commodities moving from Bombay to Calcutta is piecegoods. We never get any to carry by sea. The railways seem to have no difficulty in providing wagons for these. I am sure railway freights from collieries to Bombay are low compared with rates from collieries to some inland towns.

Answer.—(*Mr. Shah*). In pre-war days, we could carry coal at particular periods and coal in those days was not a priority cargo with the result that we could manipulate our ships to bring coal down from Calcutta to suit our convenience. Today the Deputy Coal Commissioner (Distribution) lays down that a certain amount of coal must be carried and coastal steamers have to be provided.

Question.—Before the war, the freight rate from Calcutta to Bombay was Rs. 11-12-0. But today it is Rs. 30 to Rs. 35. This comes to about 300 per cent. whereas so far as railway freight is concerned there is only a 20 per cent. surcharge. We would appreciate your views on the possibility of sea-freights coming down.

Answer.—(*Mr. Das*). The reasons for the high rates are—(1) monthly wages (of *lascars*) have gone up by 400 per cent. (2) feeding charges have gone up by 200 per cent. (3) repair charges by 200 per cent. and so on.

Question.—Could you give us a rough idea of the wages element in your cost of operation—percentage?

Answer.—(*Mr. Das*). I am sorry I cannot now. I can find out.

Question.—The picture we would like to keep before you is that in view of the very large difference between rail and sea freight rates existing today and in view of the drive which the railways

might make to rehabilitate their operations, all coal may move by rail and not by sea. What kind of effect will that have?

Answer.—(*Mr. Shah*). Talking about freight rates, the coastal rates has a very significant relation to the charter hire rate which is being quoted on the Baltic Exchange. That is the criterion on which the rates are usually fixed all over the world. In the pre-war years, the charter rate was about 2 sh. 6d. to 3 sh. per dead-weight ton. But today, it is difficult to get a ship at anything less than 18 sh. to 20 sh. per ton and that rate is not likely to come down in the very near future. Bearing that in mind, the rates in India have not gone up unduly. The very high operating costs must also be borne in mind. Considering these aspects, I think the rate we are charging at present is quite reasonable.

Question.—We are not questioning the reasonableness of your freight rates. We want to know whether the freight rates are likely to come down. If there is not going to be any substantial reduction in the rates, then we would like you to consider the fact that with rehabilitated railway operations, coal would naturally prefer to travel by rail and not by sea.

Answer.—(*Mr. Das*). That might or might not be undesirable from our point of view. Normally, we carried coal from Calcutta to Bombay. But we chose to carry at the times that suited us best. We have now to carry foodstuffs, coal and military stores not in accordance with our own desires but as and when we are asked to. As soon as we get back to reasonable normal conditions of living, the freights will also revert. If the Baltic Exchange freight rates go down and if ships are available at cheaper rates, we shall certainly consider the question.

Question.—Are we to conclude from your statement that the Indian shipping industry is bound hand and foot to international considerations?

Answer.—(*Mr. Shah*). No. That would not be correct, but we have to follow the trend of the market as such and try and give as efficient service to our clients as possible.

Question.—Take this illustration: It has been contended that for the last 30 years, the steel industry in this country has been static because they regulated their prices according to international prices irrespective of costs of production and irrespective of the purchasing power of the masses in this country. You do not mean to suggest that you should follow these international standards and not act in the larger national interests?

Answer.—(*Mr. Das*). The position is this: We have a free competitive market for shipping. In such a market any intelligent ship owner would only quote rates which would give him a reasonable profit. The fact that the rates are running high shows the extent of the rise in expenses in running ships. There should be re-

turn freights for steamers to ply more economically. Before the war, we used to carry coal for the M. & S. M. Railway and for Government railways. The railways could not carry coal to Madras. All the contracts were with us. Today, what would have been normal return freight for the ships goes to the railways. True, the railways have kept their former rates, but this is not possible for the commercial undertakings. The railways are utilising their wagons fully.

Question.—Could you enlighten us in regard to your procedure for fixing rates for the Conference Lines ?

Answer.—(Mr. Das). We have a Pool. We have three Lines and on an agreed basis, according to the Supply and demand position the freight rates are fixed.

Question.—As compared with the pre-war position, is there any reduction in the tonnage available for movement of goods ?

Answer.—(Mr. Shah). To some extent, it has gone down and this makes it a little difficult to adjust our ships for berthing at various ports as required.

Question.—Will you welcome or deprecate the institution of a 'collier service' as a separate organisation ?

Answer.—(Mr. Das). Naturally, nobody will welcome competition.

Question.—By this control over shipment of coal, you have been forced to carry coal from Calcutta to West Coast. Has the traffic been profitable ?

Answer (Mr. Shah).—We do not mean to say that we are forced to carry coal or other goods. It is by agreement with the Government that the Conference Lines carry all the requirements of priority cargoes. On that basis, we have been trying our best and we have succeeded so far in supplying the necessary tonnage in Calcutta for carrying coal to various ports in India, Ceylon and Burma. Because of that commitment, we have very often to send our ships back in ballast with the limited tonnage at our disposal, so that our tonnage gets back in time and the coal is not delayed in shipment. About six months back, there was a case in which the M. & S. M. Railway was rather worried about the supply of coal. There was a lot of correspondence and discussion with the Controller of Indian Shipping and the Deputy Coal Commissioner (Distribution) and the Conference was approached to supply the tonnage. There have been cases in which at Calcutta coal has not been forthcoming at the docks with the result that ships have had to be delayed for more than 12 days, whereas normally a ship could load coal and turn back within 7 or 8 days. Often as a result of slow arrivals of coal, ships remain idle for well over a week. All such delays and idle periods have to be covered in the freight rate.

Question.—We would appreciate some sort of considered statement from the shipping companies giving first of all the reasons and explaining the large increases in sea freight during war-time and indicating briefly the trend of sea freights in other countries and whether it is at all possible to anticipate any substantial reduction in the freight for coal in the near future.

Answer (Mr. Das).—This will have to be referred to our Head Office.

Section XIV

OIL COMPANIES



93. RECORD OF DISCUSSION WITH THE REPRESENTATIVES OF M/S. BURMAH-SHELL OIL STORAGE & DISTRIBUTING CO. OF INDIA, LTD. (M/S. R.N.B. BRUNT, D.W. MULLOCK AND J. N. PAYTON) STANDARD VACUUM OIL CO. (M/S. C. B. MARSHALL) I. J. ENGLISH AND A. A. ROBINSON) AND CALTEX (INDIA) LTD. (M/S. F. C. WRIGHT, R. R. HARRISON AND L. E. STONE).

Question.—Are there any mills—textile or otherwise—in Ahmedabad which are using oil today?

Answer.—The position today is that one mill is actually being fitted with oil-burning equipment and two mills are in process of getting equipment and tanks. As far as we know no mill has actually burnt any oil. Possibly 14 to 15 mills out of 70 are considering using oil, either partly or wholly.

Question.—Have these installations been put in with every consideration to the price factor today?

Answer.—No. I should say that the most important factor is the effort of the Textile Commissioner to press upon the mills to switch over to oil.

Question.—Are there any particular specific advantages in the matter of burning oil in preference to coal?

Answer.—The advantages are:

- (i) ease of control of temperatures,
- (ii) maintenance of abnormally high temperatures for specialised metallurgical work,
- (iii) convenience of storage and handling,
- (iv) cleanliness,
- (v) reduced losses through wastage, i.e., no pilferage,
- (vi) use of oil firing is generally accompanied by large reduction in staff in handling oil compared with coal.

To some extent these are administrative advantages, but as far as the maintenance of temperatures is concerned, it is a technical one.

Question.—In the matter of conversion of boilers from coal to oil burning, are the adaptations very complicated and costly?

Answer.—Generally I should say no. It has been done in the Bombay mills without much difficulty.

Question.—Is it possible, if necessary, to revert back to coal without much difficulty?

Answer.—Yes. The conversion from coal to oil has in certain circumstances been done in a couple of days and sometimes it takes a fortnight. The reverse process is much the same.

Question.—What would be the normal source of supply of oil for Ahmedabad mills?

Answer.—The Persian Gulf. Burma did not supply any fuel oil before the war. Large quantities of diesel oil came from the Dutch East Indies, but since the war they have not supplied any oil to India.

Question.—Will there be alternative sources of supply of this fuel for Ahmedabad?

Answer.—Well, it has two big alternative sources—the Persian Gulf and Bahrein, and in due course the Dutch East Indies.

Question.—Is there no possibility of any supply within India itself?

Answer.—The production of oil in India is receiving serious examination. There are two existing fields—one at Digboi in the north-east and the other in the northern Punjab. Their output is small.

Question.—You will appreciate our anxiety that if a large industrial unit like the Ahmedabad mills is converted to oil and your present understanding continues, it may be—I do not say it will actually happen—that some sort of monopolistic tendency may crop up later?

Answer.—In the unlikely event of such a situation arising, the industry can reconvert to coal.

Question.—Could you tell the Committee briefly if it is not confidential, what are the specifications of the furnace oil which you supply?

Answer.—The approximate specification is as follows:—

Specific gravity—920.

Viscosity—325/375 seconds Redwood I.

Calorific value—18,750 B. T. U. per lb.

Flash point—200/225° F.

This is the same oil as we supply to ships.

Question.—How does the price of oil compare with the price of coal at Ahmedabad. Have you made any study?

Answer.—The price at Ahmedabad including Rs. 21 rail freight from Bombay would come to Rs. 75 per ton at present. Coal prices would not be above Rs. 35. The average is about Rs. 33. You may thus compare two tons of coal at Rs. 66/70 with one ton of furnace oil at Rs. 75.

The breakdown of the price of oil is as follows:—

Basic price of oil in Bombay	
ex-installation	Rs. 52-3-0.
Railway freight	Rs. 21-10-0.
Octroi	Rs. 1-8-0
	<hr/>
	Rs. 75-5-0

This includes import duty which is Rs. 9-12-0 a ton. The prewar price of oil in Bombay was Rs. 26-12-0.

Question.—With these prices, is it not a fact that coal has a definite advantage?

Answer.—Yes, that was still more so before the war.

Question.—Would these factors, which you have listed here as to advantage of furnace oil, counter-balance the use of coal?

Answer.—I should say not. Many of these apply to specialised industries, and classes of manufacturers, *e.g.*, there is a certain amount of furnace oil trade in Calcutta which is justified on these grounds but on no others.

Question.—Do you anticipate any variation in the price of oil in the near future?

Answer.—This is a question on which no definite statement can naturally be made.

Question.—Is it not correct that the price of oil is not based on economic considerations but on factors outside costs of production and the supply and demand position?

Answer.—The price depends on the market. But the oil companies now, as always in normal times, are keen sellers of furnace oil. I think anybody who has had experience of the trade in Bombay over the past new years will agree with that. In Bombay there has been continued expansion of business every year since we started in 1917.

Question.—As keen sellers would you not like to make up that price disadvantage you have in Ahmedabad?

Answer.—Not to that extent. There are economic limits?

Question.—What would be the normal method of transporting oil to Ahmedabad?

Answer.—By tank wagons. A pipeline can be an alternative method of transport which could be considered. A rough calculation of the potential trade is 20,000 tons a month. That means we require one thousand tank wagon trips. The number of tank wagons required depends on the turn-round. If you estimate that each wagon would give 3 round trips a month you would require 1/3rd of one thousand, *i.e.* 333 plus the usual reserve, say about 375 wagons. If you reckon on four round trips per month, you would reduce that to 281; if it were 5, it would be 225. I do not see why, if we should run special trains consisting of tank wagons, as we did in the stress of war conditions, five trips a month should not be achieved. At present the tank wagon fleet is fully occupied with the existing trade and therefore additional wagons should certainly be required.

Question.—What about the pipeline?

Answer.—It is an enormously costly project. It is one, in which some form of Government finance would be likely to be required. The estimate of capital cost given once was Rs. 2 crores. There are other factors like the liability of pipelines to breach just as there are breaches on the railways in the monsoon. We do not rule out the possibility of a pipe-line, but it has to be considered from every angle.

Question.—Where would the pipeline start?

Answer.—Either from Bombay or Port Okha. Imports at Port Okha are subject to a pre-war agreement between the Government of India and the Baroda State whereby the total import of petroleum products into Port Okha will not exceed 2 per cent. of the total volume of imports into the whole of India. Before the war there was no furnace oil importation of any magnitude into Port Okha and the 2 per cent. was made up by importations of Kerosene and petrol and diesel oil. Kerosene and petrol are products which yield vastly greater customs duty than fuel oil does, and the Baroda Government's understanding was that we would maintain imports of these products and not replace them with furnace oil. But during the war, the agreement between the Government of India and the Baroda State was abrogated to the extent that we were allowed to import quantities in excess of 2 per cent. and furnace oil has come in. That cannot be guaranteed or even expected on the return of peace time conditions. Apart from the Ahmedabad mills, we reckon that the industries of Kathiawar offer the best prospects of increased furnace oil consumption, and we are hopeful that the Government of India will be prepared to make certain concessions over the pre-war agreement.

Question.—Even if the transport of oil from Bombay to Ahmedabad is 20,000 tons, the amount of rail freight involved is about Rs. 50 lakhs. So, if the capital cost of a pipe-line (at Rs. 2 crores) is four years' freight, do you not consider it an attractive proposition?

Answer.—The pipeline would require a great deal of maintenance. The oil does not flow freely. So pumping stations will have to be installed at distances of a few miles. The money invested may not come back as quickly as you suppose.

Question.—May we take it that generally your opinion is that a pipeline from Bombay to Ahmedabad will not be an economic proposition?

Answer.—That is our definite opinion, but we are prepared to examine any proposition on its merits. The estimate of Rs. 2 crores was one that was prepared in war-time. We shall have to work out the costs and the financial implications afresh.

Question.—Apart from being keen sellers of oil, do you consider it is desirable for an industrial unit like Ahmedabad to convert itself to oil burning, thinking particularly of assurances which are needed in respect of continuity of supplies?

Answer.—It is all purely a question of economics. the Persian Gulf oil fields have produced very large quantities of oil and have very large proved reserves of oil. Leaving out of account war and civil commotion, you may regard supplies as perfectly safe.

Question.—Would you like to say anything about the freight rate from Bombay to Ahmedabad?

Answer.—We have asked the Railway Board to consider a reduction in the railway freight. The rail freight on coal from Jharia to Ahmedabad comes to Rs. 13-10-0 for a distance of 1,216 miles; on oil from Bombay to Ahmedabad the freight is Rs. 21-10, for a distance of 310 miles. The former comes to about 2 pies per mile and the latter one anna per mile. We wonder whether it would not be possible for some recommendation to be made to the Railway Board that they should consider some reduction in the railway freight.

Question.—It is a dangerous argument to follow. The Railway Board might turn round and tell the Committee "Have you inquired into the cost of the production of oil?".

Answer.—That I suggest is not a relevant factor. They are carrying coal at an uneconomic rate, and we feel there should be some equivalent treatment to a coal substitute. Supposing you decide that it would be a good thing for Government to convert from coal to oil in Ahmedabad, in general, how would you deal with the problem of the price factor being against oil?

Question.—Assuming that there is not enough coal and conversion to oil is necessary, it is for Government to devise ways and means to provide the substitutes. Assume that today in order to enable the textile mills to use oil instead of coal, adjustments in the railway freight on oil are made; but if within the next five or ten years the price of coal comes back to the pre-war level, the Government of India or the Textile mills in Ahmedabad may like to have some sort of reduction in oil prices. How would you view such a prospect?

Answer.—We cannot forecast what the prices will be. But we competed with coal in Bombay before the war. One point I want to make is that in the immediate future the limiting factor in the case of oil is the availability of tank-wagons, and I should say that the quantity which we could put into Ahmedabad within the next four or five months will be somewhere between 6,000 and 10,000 tons a month with the existing fleet.

Question.—Is it a fact that there is at present, really no surplus furnace oil?

Answer.—Increased supplies of oil can be made available.

Question.—If that is true, should not the price go down?

Answer.—But there is a limit. We cannot sell below cost.

Question.—Have you given any thought generally to the increased use of oil or substitution of oil in other industries in India?

Answer.—Yes, very much so. Take the Railways generally. The B. B. & C. I. railway could use furnace oil. The S. I. Railway is already using oil in increasing quantities. The G. I. P. were running on furnace oil from 1917 to 1929. Then they electrified. The M. & S. M. Railway is considering switching over to oil to some extent. Kathiawar has the best prospects and we estimate their requirements at 250,000 tons per year.

Question.—From the point of view of strategy, do you think it is correct to depend upon import? You say the factors would be different in peacetime.

Answer.—Just now we had a world war, during which oil supplies to India were maintained throughout. In the future, if you had an enemy in occupation of the Persian Gulf, it would inevitably effect the west coast of India. But these questions are more for the General Staff to consider.

Question.—Is it correct that Abadan is taking all the benzol from India?

Answer.—The benzol production in India comes only on a small scale ex two factories in the coal-fields area of Bengal/Bihar. With the outbreak of the war the production of benzol was stepped up as it was a valuable source of toluene. The question of the disposal of benzol was reviewed with the result that in May 1941 the Oil Companies were approached by Government with a request to take over the distribution of the detoluated benzol mixed with motor gasoline to the ordinary consumer, as disposal through military depots was not convenient. In 1943 the need for stepping up the production of 100 octane aviation gasoline had become such paramount importance that H. M. G. decided that India's benzol production, after detoluation, should be exported to Abadan—even though this meant a corresponding increase in the tonnage of motor gasoline to be carried to India at a time when tankers were in very short supply; by the use of benzol at the refineries the yield of 100 octane gasoline could be materially increased. Between November 1943 and the end of the war with Japan approximately 11,800 tons of benzol were shipped to Abadan. Since the end of the war India's production of benzol has again been distributed by the oil companies who during the first 5 months of 1946 delivered about 6,60,000 gallons of benzol in admixture with petrol in a limited number of markets in Eastern India.



Section XV

INDIVIDUALS

94. A NOTE ON INDIA'S COAL RESOURCES

By

SIR CYRIL S. FOX, D.Sc., F.G.S., ETC.

1. INTRODUCTION

The Indian Coalfields Committee now investigating the problems of the coal industry is the fifth official effort to bring the need for further economic and administrative measures clearly before the Government of India. The first Coal Committee issued a report in 1838 and a subsequent report in 1846, and there have been important reports in 1921, 1925 and 1938—all of which are to be reviewed now in one direction or another. In the beginning (1837) the Coal Committee endeavoured to assist the Indian Coal Industry by bringing out British miners to open and work outcropping coal seams on up to date lines, but later to assist the miners in their operations (1846) found it necessary to press for a geological survey of the coal formation. Now, after a century of coal mining and with industrialisation on the threshold of expansion under a nationalist administration, a review of the Indian Coal industry is necessary for future action. Questions of nationalisation of mineral leases and coal mines require examination, and problems of larger production, better utilisation and more satisfactory prices are to be solved. In this connection much information has become available from the experiences of His Majesty's Government in the United Kingdom in nationalising the Coal Industry of Great Britain.

2. ORIGIN OF COAL

Before exploring the various questions and problems referred to above, a brief discussion on the natural history of Indian Coal may elucidate the subject. Coal was formed from plant (vegetable) matter tree trunks, branches, leaves and such debris. In some cases this vegetable matter accumulated in situ, where forests grew.

In the case of the Indian coalfields, both the lower Gondwana and the tertiary coalfields the evidence is that the vegetable material was drifted away and settled in lakes or lagoons at some distance from the forests. As logs float longer and will be carried further than twigs and leaves, a certain degree of sorting occurs as the vegetable matter is carried into quieter waters. Also, since the finer plant debris is more liable to trap earthy sediment, the sorted vegetable matter will contain different amounts of inorganic material (ash) at the time of deposition, which will affect the ash percentage of the coal formed from such drifted plant debris.

The conversion of the submerged vegetable matter into coal takes place away from contact with air, and largely by a process of mummification involving the discharge of "marsh" gas. As the layer or bed of newly formed coal is covered by more plant debris or sands or clays, it is compressed by the weight of these later sediments. Indeed, the pressure, by superincumbent strata or other forces, seriously affects the nature of the coal. Those least weighted have more gaseous (volatile) components, and so there is often a range from high volatile lignite to an anthracitic coal in seams of the same geological age, as in the case of the Tertiary coalfields of Jammu in the Kashmir Himalaya (where the tectonic squeeze of mountain building has exerted pressure on the coal-bearing strata, including the coal seams). The mode of coal formation outlined above covers 99 per cent. of the workable coal seams in India. The coals of the Gondwana fields were formed in river swamps and fresh water lakes, while those of the Tertiary fields of Assam and the Punjab appear to have originated in coastal lagoons and estuarine backwaters.

3. MOISTURE IN COAL

Analyses of coal samples carefully collected from seams not subjected to weathering or soaking by percolating water since the coal was formed, show the following proximate assays (where all the samples are of Vitrain or pure coal substance):—

	A.	B.	C.	D.	E.	
Moisture	1.50	2.00	2.00	1.75	1.00	per cent
Ash	1.50	3.00	2.00	2.25	3.00	"
Volatile Matter	45.00	36.00	32.00	28.00	24.00	"
Fixed Carbon	52.00	52.00	64.00	68.00	72.00	"
	100.00	100.00	100.00	100.00	100.00	Totals.

These analyses of Vitrain represent coal from—A. Tertiary Assam coal measures ; B. Upper Raniganj series ; C. Lower Raniganj Assam series ; D. Upper Barakar series ; and E. Lower Barakar series. They give low moisture percentages and all the samples yielded coal of a strongly caking (coking) character with specific gravity between 1.25 and 1.32. Where samples of average coal, as distinct from Vitrain, were concerned it is found that the Ash content might range from 2 per cent in the Assam coals to upwards of 25

per cent in the case of the Gondwana coals, but the Moisture percentage remains below 2.00 per cent and the material is of caking character, even where the Ash is high.

When samples of coal have been taken from seams in strata which have been subject to prolonged soaking, as in the case of the Wardha and pench Valley coalfields and the eastern portion of the Raniganj coalfields, the moisture percentage may average above 5 and range up to 10 per cent

or more. In all such cases the coal is either feebly caking or entirely without caking property. It is possible to show that the same seam yields coal with caking or non-caking properties according as the sample is collected from positions where the contained moisture is low (below 3 per cent) or high (above 4 per cent). Indeed, there is no longer any doubt that non-caking coals, low in and high in moisture, have lost their caking property as a result of prolonged soaking (for centuries) in water-saturated strata. My own observations tend to show that one per cent of moisture causes as much loss in the caking property of a coal as 6 or 7 per cent ash.

4. CALORIFIC VALUE

At the Government Test House, Alipore, it is the custom to determine the calorific values of Indian coals on a dry or moisture free basis. In this way the ash percentage looms large, and the thermal or heating value of the coal is shown better than it actually is, on coal "as received". Again my own investigations have shown that a coal with, say, 8 to 9 per cent moisture, 10 to 12 per cent ash, 30 to 31 per cent volatile matter, and 58 to 60 per cent fixed carbon, which is non-caking yields a calorific value of 12,400 B.T.U's on the "dried sample", but only 11,400 B.T.U's on the "sample as received". Under conditions of actual combustion, where questions of specific heat and latent heat of steam are involved, the effect of moisture in coal must be more disturbing if we remember that the specific heat of water, (1.0) is roughly five times that of ash (0.2), and the inorganic matter or ash has no such absorbing action (for heat) as that of the latent heat of steam (at 100.0). Furthermore, since freight is paid on weight, and coal with 10 per cent of moisture (loaded, say, in Bengal) may lose half this moisture

on a journey (say to Rajputana) the buyer pays for one cwt. per ton of coal which never arrives.

Ash does *not* disappear and many experiments with Indian coals show that it is generally impossible to reduce the ash content by any commercial process, where as it is easy to dry coal and thus enhance its actual heating value, and consequently, effort should be directed to the drying of high moisture coals. I have drawn special attention to this subject of ash and moisture, because the tendency in India is to lower the Grade of a coal if it is high in ash and not to take a serious view of the moisture content. Also, high moisture coals are well-known to be far more subject to spontaneous combustion (especially in storage such as ships' bunkers) than dry or low moisture coals, so much so that relatively low ash, but high moisture coals from the eastern areas of the Raniganj coalfield (with freight advantage to Calcutta) are seldom shipped for export or even as bunker coal from Calcutta. An Indian Patent (No. 26991 accepted 17th February 1941) shows that if properly dried and treated such coals may be rendered immune to spontaneous combustion and have their caking property restored.

5. GRADING OF COAL

Most methods of Coal Classification are academic rather than practical and, in my opinion, the Indian Coal Grading Board have adopted a simple and sound procedure based largely on the heat yield or calorific value. It would be better, however, if the analyses were on samples "as received" and the compulsory drying of high moisture coals was in force. The following proximate analyses show, in a general way, the effects of ash. Moisture and Volatile Matter on the Calorific Value of Coal, "as received":—

	1	2	3	4	5	6	7	
Moisture	2.00	2.00	2.50	7.50	10.00	1.50	1.25	per cent
Ash	1.00	9.00	11.60	11.50	11.50	11.50	15.00	„
Volatile Matter	40.00	40.00	36.50	32.00	28.50	25.50	22.50	„
Fixed Carbon	57.00	49.00	50.00	49.00	50.00	61.50	61.25	„
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	Totals.
B.T.U's	14,500	13,150	12,800	11,750	11,350	13,700	12,800	

Where 1. is an Assam Tertiary Coal (high Volatile).

2. ■ Baluchistan Tertiary Coal „

3. a Raniganj series Coal „

4. another Raniganj series Coal „

5. another Raniganj series coal (Low Volatile)

6. a Barakar series Coal „

7. another Barakar series Coal „

The same analyses on a "dried sample" basis would show;—

	1	2	■	4	5	6	7
Ash (percentage)	1.00	9.00	11.25	12.00	12.50	11.75	15.25
Volatile Matter	40.75	40.70	37.75	36.00	32.50	26.25	22.75
Fixed Carbon	58.25	50.10	51.00	52.00	55.00	62.00	62.00
B. T. U's	14,500	15,250	12,900	12,150	12,250	13,750	12,850

which reveals the considerable improvement in the Calorific Value of 4 and 5, both high moisture coals, after drying. The effect of the Ash is seen in assays 1 and 3 and 7. The influence of the Volatile Matter in these analyses is not so evident, and indeed it is not yet certain whether there is a percentage of very strongly held moisture in some coals which is given up with the volatile matter. In any case the influence of the volatile matter is largely dependent on the gases evolved and thus influenced by the character of the coal (lignite, bituminous or anthracitic).

However, the true practical basis for Grading Coal is on the Calorific Value on sample "as used".

6. COAL RESERVES.

Generally estimates of India's Coal Resources refer only to the Gondwana fields of Peninsular India and do not include the Tertiary fields of Assam, etc. The data given below are based on calculations for recoverable coal in India of a quality which is known to be suitable for industrial or domestic purposes. The reserves are as follows in millions of tons :—

I.	Reserves in seams 4 feet thick and upwards within a depth of 1,000 feet and having less than 25 per cent. ash.	20,000	to	24,000
II.	Reserves of better quality, ash under 16 percent, in seams 4 feet thick and upwards and within 2,000 feet depth.	5,000	to	6,000
III.	Reserves of strongly Caking coal with sulphur as much as 5 percent and in seams like those of I. and II.	2,500	to	3,600
IV.	Caking, Coal, low in sulphur, suitable for making metallurgical coke for Iron ore smelting in seams like II. and III.	1,250	to	1,500
V.	Computed reserves of Good Quality coal low in sulphur, which can be prepared by blending with suitable low ash coals or and by some process for rendering non-caking into caking coal.	Possibly upwards 6,000.		

It is to be noted that strongly caking coals, high in sulphur although yielding high sulphur coke are nevertheless suitable in smelting sulphide ores such as these of copper, lead, etc.

7. MINING OF COAL

Since 1902 when the Department of Mines was instituted, the mode of extracting coal in India has been under close official supervision, and for many years the leading coal Companies have operated their mines with efficient equipment and skilled personnel. Furthermore, geological reports and maps of most of the coalfields in India have been available for a long time, revised recently in the important cases. It would seem therefore that coal mining in India should be on the most up-to-date lines with the highest percentage of extraction possible and at very reasonable cost. Until a few years ago Indian coal was the cheapest in the world, but efficiency in extraction, considering the total coal in each area, was reckoned at under 25 percentage and in the Jharia coal-field, the most valuable of all, it was calculated that for every ton brought to the surface a corresponding ton had to be left in the mines. The root of this evil has been low prices, and companies which once introduced sand-stowing voluntarily were obliged to discontinue this important aid in their workings.

It is well known that better lighting underground will make the workings safer, that properly housed miners will work more happily and that thick seams cannot be worked without packing the goaves, if subsidence and collapse are to be avoided. These improvements are impossible if the price of coal is kept down by any manipulated system of purchasing coal in large quantities, say for State Railways. With obvious improvements enforced, coal mines should become reasonably safe for women underground (as is the case in the U.S.S.R.), and the conservation of coal will become almost automatically provided for, as upper seams will not become unworkable by subsidences and a far larger percentage of coal in the seam being worked will be extracted

without fear of collapse and less by fire. It is simply a matter of computing the price that must be paid to enforce, where necessary the introduction of sand-stowing or other method of packing the goaves efficiently, of deep open-out working by mechanical excavation, in some cases, the housing of the miners in houses which are homes to them with fields, the introduction of better lighting, and of other arrangements underground. The removal of women workers from the mines shows the unsatisfactoriness of working conditions underground.

8. SUPPLY OF COAL.

The production of coal in India has never amounted to 30 million tons annually, and for the last 25 years has averaged little more than 25 million tons a year. In almost any period where there is extra freight call on the railways an almost immediate result is shortage of wagons for the collieries, and of course shortage of coal for consumers. Colliery companies are not owners of their own coal wagons, as is the case in Great Britain, and indeed the coal industry in India is entirely at the mercy of the railways for providing the coal needed for industrial purposes anywhere outside the coal producing coalfields of India. Revenue from coal freights is so large that it must be an important consideration in the railway policy, and, in consequence, there is a suspicion that the opening of some coalfields and the closing of other is influenced by the advantage of freight returns rather than by considerations of industrial enterprise or other local developments. I am aware that some collieries do not produce coal at the same cost per ton one is more expensive to work than another; but an impartial coal committee should go thoroughly into these matters and avoid becoming ammeshed in technical details.

In 1920 the total production of coal in India was roughly 18 million tons, of which over 16 million tons were raised in the Bengal and Bihar coalfields and less than 0.45 million tons from the Tertiary (largely Assam) coalfields. The corresponding figures in 1929 and 1938 were as follows :—

23·42 million tons, 21·00 million tons and 0·42 million tons, and 28·34 million tons, 23·11 million tons and 0·52 million tons. About half the Bengal-Bihar output (between 10 and 12 million tons) is obtained from the Jharia coalfield the great storehouse of good quality—(low sulphur) caking coal in India. The larger part of the Indian production of coal is of the better quality and by far the greater percentage (80 per cent or so) is burnt as “raw” coal in furnaces and for steam raising; and perhaps 25 per cent. only of the best quality caking coal mined is treated in by-product coke ovens for the production of metallurgical coke (for iron ore smelting) and the recovery of by-products combustible gases, liquid fuels, tar, etc. Thus it would seem, that, while for various reasons (chiefly that of a satisfactory price) the production of Indian coal has been unable to rise to 30 million tons a year, even this small quantity has been extracted and used uneconomically. This aspect of the Indian coal industry was discussed at length in the *Memoirs of the Geological survey of India* (1934), volume LIX, pages 346 to 366.

9. UTILISATION OF COAL

Of the 25 million tons or so of coal used annually in India in recent years less than 2 per cent. is from the Tertiary coalfields (Assam high volatile coal chiefly) and some to 40 per cent. appears to be good quality caking coal, of which only a fraction is used for preparing metallurgical coke; but the major portion of the total coal production is of a quality superior to Grade 2. If all the good quality caking coal was used for iron ore smelting in India, the production of pig iron could be quadrupled (*i.e.* increased from 2 million tons to 8 million tons annually) without effecting the problem of the caking coal reserves. It is certain that present consumers of good quality caking coal for steam raising would require an equivalent amount, 8 to 10 million tons of coal suitable for their purpose—boiler firing, etc., as raw coal, of which perhaps less than 20 per cent. of its heat value is used. This subject of properly utilising coal has been such discussed, but so far little practical results have been demonstrated possibly because no intelligent resolutions have been arrived at to enable official action to be taken. It is known that better heating results are obtained from screened (equal sized fragments of) coal and that with powdered coal an inferior grade coal may be used. Finally the value of coal gas, both the surplus gas from coke-ovens and producer gas, has long been known, and such gases have been piped 100 miles or more is the U.S.S.R. (from the Tula coalfield to the Moscow power station).

This question of electric power generation from coal or gas has become confused with that of hydro-electric power in India, even in the Damodar Valley where India's greatest reserves of coal lie. It is argued that electricity from a hydro-electric station is cheaper than that from a coal-fired generating station, and the success of the Tennessee Valley administration is held up as an example for the Government of India. It is forgotten that there are no important coalfields in the Tennessee Valley and that the desolation

there had been caused by de-forestation (largely for making charcoal for the copper ore smelting industry) and subsequent soil erosion. Also that the erection of the Muscoe Schools power station and explosives factory was a “white elephant” legacy from the war of 1914-18, both having been completed after 1919. The Damodar Valley problem is simple—flood control to trap silt, and any hydro-electric project in the main scheme must be subsidiary not only to flood control and the trapping of silt but also to the generation of power from coal in great electric central stations. The only water problem is that of sufficient supplies of cold water in the hot season for condensing purposes to maintain a high vacuum, and this is not a problem any more. What is desired is the early generation of cheap electric power (estimated at less than 0·125 anna per unit) for industrial use, and the electrification of the railways in Bengal and Bihar.

10. NATIONALISATION

Much optimistic writing has been indulged in during recent years regarding the State ownership of all mineral rights, particularly coalfields, as well as the State acquisition of the coal industry itself. I think that the experience in Great Britain has been that it is both costly and complex, and from my own experience in India I should say that some coal areas would not be worth the trouble or the expense. In many cases the original landlords or zamindars of the oldest worked colliery concessions secure royalties of $\frac{1}{3}$ rd to $\frac{1}{5}$ th of the amounts paid by the present lessees, because they have been transferred so many times. There is no doubt that in those cases, *e.g.* the Hutar coalfield, where litigation has held up development, the State might take over with advantage; but as regards zamindari lands in general, it would be wise to spend five years in a searching investigation before taking action to acquire all coal lands under State control or ownership. In any case these steps will be linked with the working of the coal mines by the State wholly or selectively, according to some all India plan. At present mineral rights rest with Provincial Governments, Indian States and Zamindars, and there is disconnected planning now hindered by high prices and difficulties of transportation, when industrial progress depends on reasonable prices and assured supplies of coal.

The Indian coal industry has not grown to the stature that was anticipated early in this century and this is due, in my opinion, to the stranglehold by the State through the method adopted for the State Railway purchases on the one hand and the short-sighted competition of the producers on the other. If the State has a settled policy for coal production and utilisation, it might be least troublesome to farm out the production to the existing producers and also to arrange for adequate supplies to recognised consumers at agreed prices for different qualities throughout India, with the penalty of confiscation of lease or stock for contravention of agreements. These transactions can still be conducted through provincial Governments, Indian States and the Zamindars and existing lessees, and then step by step

the Central planning or control and ownership would go on to ultimate centralisation of all leases and production and supply of coal and electric power. In the meantime the scheme in the United Kingdom might be fully studied, and perhaps the present day system which has become established for coal mines, etc., in the U.S.S.R. also. Conservation of the coal resources will follow proper lines of the mining and utilisation of Indian coal, which has been made available in the desired quantities at justifiable prices.

ORAL EVIDENCE OF DR. SIR CYRIL FOX.

Question.—Do conditions similar to those in the Indian coal industry in reference to the types and qualities of coal prevail anywhere else in the world?

Answer.—Yes. In Australia and South Africa. Otherwise, as a general rule, Indian coals are very high in ash content compared to western coals.

Question.—You have placed a good deal of emphasis on the moisture content of the coals and your statement that 1 per cent of moisture causes as much loss in the coking character of a coal as 6 or 7 per cent of ash. Does the converse proposition hold good? That, is reducing the moisture of a particular coal by drying it or by some other method, will it improve the coking quality of the coal?

Answer.—You cannot improve it by drying it, you can only increase the calorific value by drying. But if, at the time of drying, you could pass gases through the coal, it reactivates the coal, and it gets back its coking character. The coal, when dehydrated, becomes porous and this enables it to absorb the gases.

Question.—In regard to the reserves of Indian coals, you have made very valuable contribution. One of the questions which arises on a cursory reading the estimates of coal working reserve in seams 4 ft. thick within a depth of 1,000 ft. why is this particular criterion adopted?

Answer.—That is only for high ash coal; it may not be any use going down to 2,000 ft. as it would cost too much.

Question.—You have not chosen that criterion with any special reference to workability of the coal?

Answer.—For practical purposes. Coals which contain more than 25% ash are not going to be worked, not for many years to come whereas in the case of low ash coals, you may go to 2,000 ft.

Question.—You have taken the reserves of good quality coal within 2,000 ft.

Answer.—Because the ash is low, the quality is better.

Question.—What about the recent development in mining coal to as low a depth as 3,000 ft.?

Answer.—You could go to 4,000 feet for good quality coal. I go up to 2,000 ft. not below 2,000 as there will be very few good coals below 2,000 ft. in India.

Question.—Dishergarh coal is good coal and you go below 2,000 ft.

Answer.—I said very few. The deepest working in No. 9 seam and some of the collieries belonging to Andrew Yule and Co.—there the coal may be as deep as 4,000 ft., but I am not sure it is good quality coal; that has not been proved. As you go down, those seams are usually found “burnt” by igneous intrusions. Barring certain upper seams, middle seams are severely “burnt” and when you go down, they are more and more “burnt”.

Question.—Is it possible for you to give us an estimate from your knowledge of the actual reserves of coal of different qualities, different grades up to 3,000 ft.?

Answer.—I could give you a guess, but it would be a bad guess. We have no information at all reliable.

Question.—Up to 2,000 ft.?

Answer.—You could almost double the estimate of 1,000 feet.

Question.—Will it be your recommendation that a further detailed survey be made of these reserves?

Answer.—In Jharia and Raniganj every seam is calculated and the details are published. Not many details are known in Karanpura and Central India. Western Karanpura is probably a very good area. There are minimum estimates available.

Question.—Referring to the conversion of non-coking coals.

Answer.—I have carried out some experiments but all were in a small way. In some cases the blend forms a very fine coking coal. In one process non-coking coals can yield good coke.

Question.—Have you any comments on the Assam and Punjab coals?

Answer.—I have initiated research work on the sulphur coals of Assam and Punjab which are quite useful for cement making. The sulphur does not affect the cement. For the purpose of copper and lead smelting, they are the right coals. The trouble in using high sulphur coal is because the flue gas should always be kept hot, i.e., above 200° C. If there is a drop in temperature sulphuric acid is formed and reacts on everything. There is no such reaction in Raniganj coal.

Question.—In view of the admittedly low reserves of high grade coal both metallurgical and the rest, do you consider there is a case for regulating the use of same coal?

Answer.—I was inclined to think so. But now I do not think that. The industrial forces are moving so strongly and India will be in such a strong position with iron and steel production in the future, that you can export pig iron and

import the best coal in the world. The best English coal will be available and so I would not pass any remarks on the regulation of the use of coal provided they use it with reasonableness, without wastage.

Question.—There is such a preference for high grade coal to-day that the locomotives want to use metallurgical coal in their boilers. Is that a proper scientific use of this valuable commodity?

Answer.—I used to think not before. Now the conditions are different.

Question.—What has made you change your opinion?

Answer.—The reason is this. There is the 4th Clause of the Atlantic Charter for freedom to secure raw materials. India cannot for example produce aluminium without certain other things which are critical and must be imported—and India has some excellent supplies of aluminium etc. I do not think you can produce one ton of aluminium from Indian raw material supplies without trouble now. Aluminium that is produced in Travancore is produced with imported materials. The quantity which is produced at Asansol is produced with some Indian material but needs certain imported items at an enormous cost. In the case of coking coals the resources are quite small compared with the reserves of iron ore but not compared with the iron and steel produced yearly. The collieries should be put in order first to make them fit for people to work in.

Question.—Have you any ideas about washing or treatment of coal?

Answer.—I have not had any personal experience of that for the last 8 or 9 years. Previously, I had been in very close touch with it. We had some experiments carried out in the Geological Survey office. As a rule washing is not a successful method of cleaning Indian coals. That is the general impression I have received.

Question.—You are not conversant with the recent experiments conducted?

Answer.—I was the Chairman of the Fuel Research Committee till two years ago and I heard a great deal about Dr. Forrester's work and so on, but I have seen no result that I would consider suitable to follow up.

Question.—Do you consider that the scope of the projected Fuel Research Institute is truly and properly designed?

Answer.—Yes, I think it is being well done.

Question.—Is the scope laid down in the programme comprehensive enough?

Answer.—Yes, fairly good.

Question.—Surely, we require quite a complete re-analysis or fresh analysis of so many different types and grades of coal available. It may take years according to the present programme.

Answer.—I had a suggestion which was put up to Government of having geologists taking

samples of the seams along their length, throughout a coalfield and examining them for metallurgical, physical and chemical properties.

Question.—You have no very definite views on the question of supplying the consumer his coal at some regulated price?

Answer.—I dealt with that in my note. I feel that the price of coal should be the same everywhere. I don't know how you can do it.

Question.—That is, you contemplate some sort of a Central Marketing Agency under the control of the Government to fix prices in different places in such a way as to make it equitable?

Answer.—Yes.

Question.—Dr. Fox, you have made some study of sand supplies in the Damodar river and you are also conversant with the projected Damodar Valley development. Assuming that you agree with the policy of conservation, i.e., stowing for conservation and not only, for safety, do you consider that the erection of these dams at various parts of the river would impede the flow of sand in the down reaches?

Answer.—Yes, they will certainly do so. The point that has not been understood even by irrigation people is that when a river is flowing in flood the amount of silt in suspension is smaller than that moving along the bed of the river. I can give you an example. There is a bridge in the Jharia coalfields, the Dyer bridge across the Damodar. I had my own suspicions for a long time about a pier of that bridge, and we made an examination. Jessops had built it. I noticed the bridge was not quite straight. We examined it on one of our excursions. There was on record that the pier foundation was 20' deep. Movement of the sand had loosened that pier down to 20 feet. There is the case on record in the book "The Young Engineer" (1936, p.85) about a bridge over the Nerbada River. The Chief Engineer of the Railway was a fisherman and during the rains he was at that area and asked the village people where they thought they would get good fishing. The people showed him the down stream side of a pier on that bridge. There was a big hole there and he inspected the hole which he found under mining the pier. When the river went down, there was no hole at all, it had filled with sand.

Question.—So, in your opinion, the construction of these various dams in the Damodar River is bound to affect the flow of sand?

Answer.—Yes, the movement of sand will stop at the dams and silt up the reservoirs.

Question.—In your opinion the Damodar Valley project would only mean a reduction in the deposits of sand in the lower reaches of the river?

Answer.—I have written in the Statesman about it. To put a big hydro-electric scheme in those conditions is unwise and will prove un-economical.

Question.—You must have had an opportunity of examining the conditions of the mining leases in the Central Government mining lease form. Do you consider them to be defective in any instance?

Answer.—They are very good ; except that the rates of royalty are sometimes too high and sometimes too low.

Question.—It has been stated on behalf of the Indian Mining Asscn. that the period of lease as contemplated in the Government rules, viz. 30 years and another option of 30 years, is too short to enable any economic working of a fair sized colliery. Do you agree with that view ? That is 30 years *plus* an option of 30 years is not a long enough period to enable a fair-sized colliery to be worked economically and to the best advantage.

Answer.—I think 30 *plus* 30 is good enough for most minerals, but coal may be granted longer periods.

Question.—Avoiding wastage and at the same time taking the coal in a proper scientific manner ?

Answer.—You spend five years in getting your colliery into order and then five years in taking everything out at the closing stage and may require to re-equip with modern machinery periodically.

Question.—I had seen your report on the Mineral Resources of Rewa State which is a priced book. And there I find that you are in favour of the salami system.

Answer.—Well, it is this way. You give a man a lease or licence to go and prospect your country and he takes all the risk of doing that. In that case, I would pay salami. Again, you maintain a Geological Survey to find where the materials are and how much of them there are and the extent and so on. That information saves a great deal of trouble to the lessee and I can see no objection again to salami.

Question.—Is it your view that salami should be introduced in the Government rules as a whole ?

Answer.—If Government—I am speaking again as a business man—maintain a Geological Survey and a Mines Department and go to a great deal of trouble to probe a property, you have got to pay for it. Mining risks are quite serious and for saving risks I think a new lessee should pay salami or nazarana.

Question.—In fixing the salami, would you take into account the quality of coal or the quantity ?

Answer.—I am only talking of the spirit in which it is to be done. The degree of information supplied and the proof of reserves obtained.

Question.—But what effect would it have on prices of coal ? The prices are sufficiently high already.

Answer.—They are too high now, but prices have been too low. You should insist on collieries being brought to a certain minimum stage of efficiency in equipment and whatever the coal costs after that the people must bear.

Question.—I also notice that you suggest that the renewal should be granted only if the lessee has proved satisfactorily over the 30 years. At present, a lease can be renewed at the option of the lessee, but in this report you say that the renewal would depend on this factor. What do you exactly expect the lessee to do ? What are exactly the conditions you expect of the lessee to be satisfied ?

Answer.—The idea behind it is preventing a state of affairs that has happened many times. I acquire a lease ; I pay the State royalty of four annas a ton. Two days later I sell the whole thing or transfer it. You look to making more money by sale or transfer and not to working.

Question.—One or two points. I have not got particulars here of your report on the working of the new deposit near Darjeeling. Could you, just in a few words, tell us whether the coal deposit near Darjeeling is a useful one for exploitation ?

Question.—The coal there is powdery. It takes a lot of trouble to work. Some time ago, I had trouble in Afghanistan and the Afghans had a coal which was of a similar character, powdery, and I wanted a briquetting machine. Shaw Wallace offered me a briquetting machine for Rs. 98,000. I was not prepared to pay so much. I felt I could briquet this without a binder, and I actually got it briquetted under a steam hammer. I sent 5 cwt. to Sheffield. I had every reason to believe that these coals could be briquetted without anything and it was quite correct. They said it could be done and designed the machines. The machines were brought to Kabul, erected and operated. In the case of the Bagrakot (Darjeeling) coal, it does the same thing. The coal can be briquetted without any binder. I have had it tested and I think that can be easily put on the market with briquetting. But the calculations made are that it would cost something like Rs. 52, because the cost is something like Rs. 20 for briquetting with the machine now used in Baluchistan. I do not believe Baluchistan coal needs any binder.

Question.—What are your views about the proposed expansion of the Geological Survey of India ?

Answer.—I urged years ago that 150 geologists are the minimum required, but stated it would be difficult to secure even 50. Steps should be taken to have a large number of geologists trained.

Question.—Could you give us your ideas of what should be the activities of the future Geological Survey of India ?

Answer.—They should of course prepare a geological map of India. Exploration must be carried out by drilling and assays. They must go and re-examine old mines and publish results early.

Question.—Is it your suggestion that a prospecting section should be added to the Geological Survey of India ?

Answer.—Not only a prospecting section, but also a utilisation section to show how minerals can be prepared or made suitable for use.

Question.—It is your considered opinion that the strength of the Geological Survey of India is extremely inadequate to-day?

Answer.—It is ridiculously small.

Question.—You also suggested during the war that the coal resources of Kathiawar should be developed. But have you reason to believe that there are workable deposits because, from the geological reports, I find that the seams are not more than 18 inches thick.

Answer.—One foot seams can be worked if there is any suitable clay under the coal. The coal situation being so serious to-day, this coal could be used for making fire brick and pottery out of the clay found with the coal. However, the subject should be proved uneconomical before it is actually turned down. The tendency in western India is to substitute fuel oil for coal for heating purposes owing to the high prices and uncertainty of getting Indian coal.

95. WRITTEN EVIDENCE OF MR. S. C. GHOSH, CALCUTTA.

QUESTIONNAIRE I

PART I

Question 1.—(a) The conditions which impressed upon the two previous Committees on coal industry to recommend various measures have not entirely disappeared.

(b) The action taken by the Government by increasing the powers of the Mines Department and establishing the Coal Mines Stowing Board has not proved satisfactory. Further action by the Government in this direction is certainly necessary. I am, however, doubtful whether such action through the same media would be at all helpful. The present Coal Mines Stowing Act is fundamentally wrong as it is only a safety measure and its primary object is not conservation. What is needed is the compulsory stowing wherever necessary irrespective of the quality of coal with 100 per cent. assistance from the stowing fund. It is admitted that India's coal resources of all grades so far explored are not sufficient to meet its potential demand for exploiting its vast mineral resources. Both the Grading Act and the Coal Mines Stowing Act on the contrary, encourage production and waste of high grade and metallurgical coal. The policy of the Stowing Board to extend only partial help, prevents Collieries producing inferior grades of coal from taking advantage of the stowing fund. Universal and compulsory sand stowing, if introduced, would stop such wasteful process. I am definitely of opinion that greater progress towards the amelioration of the conditions would have been achieved by the introduction of a Statutory Authority on the lines suggested by the 1937 Committee. Had that Statutory Body been in existence much of the necessity for introducing the present Coal Control Scheme would not have existed and the Scheme itself would have been more equitably and justly administered.

PART II

(GRADING AND EXPORTS)

Question 2.—The emphasis laid on the coal export trade by the Indian Coal Committee 1925 is out of date now. On the contrary there should be strictest check against export of high grade and metallurgical coal. If it is at all found necessary to take any special measures for pushing Indian coal in overseas markets it should be certainly not for the high grade and metallurgical coal.

Questions. 3, 4, 5 and 6.—No observation to make.

Question 7.—Regarding of coal seams has become necessary. As a member of the Indian Coal Grading Board for some years, I found that the Act does not give the Board any power to re-grade any coal once it is graded unless requested by the mine owners concerned. I am of opinion that at fixed intervals all coals should be regraded. The grading of sections of seams certainly leads to waste in some cases. In thick seams, however, it cannot be avoided. Each case should be treated on its merits and whenever possible waste is to be avoided. All decision on this point should rest not with the Colliery concerned but with the proposed Statutory Board. I suggest amalgamation of the Indian Coal Grading Board with the proposed Statutory Board.

Question 8.—The grading of coal both for the internal and external markets should be compulsory.

Question 9.—No observation to make.

PART III

(PORT FACILITIES)

Questions 10, 11 and 12.—No observation to make.

PART IV

(RAILWAY FACILITIES)

Question 13.—It is very difficult to say definitely that there is at present not enough railway facilities to cope with the anticipated output. It is too true that whatever facilities we have got at present under the different heads are not fully availed of and the matters could have been greatly improved by proper handling of the situation.

Question 14.—No observation to make.

Question 15.—I notice with surprise that no reference has been made in the preamble of the questionnaire issued by the Coalfields Committee about the definite recommendation of the 1925 Committee on the question of preferential system of supply of wagons. In page 81 of the Report of the Indian Coal Mining Committee 1925 the Committee unanimously recommended as follows:—

“It should we think, be made clear that in no circumstances will the system of special or emergency supplies be revived.....”

The system of special wagon supply introduced under the Coal Control Scheme, which is still in force, is definitely worse than that was in force at that time. As at present it is nothing but a "Personal" rule under the Defence of India Act without any control whatsoever. Many confusing and hopelessly contradictory orders were and are being issued. This "Personal" rule had also the effect of demoralising a considerable section of the coal industry and made them forget their right to protest.

I would refer to the recommendation No. 52 (page 131) of the Indian Coal Mining Committee 1925, viz., :—

" Preferential wagon supplies should be restricted to loco coal including coal for inland river navigation companies and for ocean-going steamers from Calcutta under mail contracts with Government, to coal for works of public utility and to certified coal for export, the balance of the wagons available being distributed to collieries on a proportionate basis."

I suggest that the above recommendation be given effect subject to the following modifications :—

- (a) That the Board should have executive powers to direct the Railways and to define the principle and order of priority.
- (b) That the daily allotment of wagons in the coalfields be taken out of the hands of both the Railways and be placed under the central control and check by this Board.
- (c) That the Board should have a non-official Chairman.
- (d) That the powers of the Board should include the powers to sanction grant and allot siding space as suggested in answer to question No. 18.
- (e) That in calculating the basis of wagon supply of a colliery, stocks held by the colliery should not be taken into consideration.
- (f) That the Coal Grading Board and the Soft Coke Cess Committee should be amalgamated with it.

Questions 16 and 17.—No observation to make.

Question 18.—Sanction, construction of Sidings and allotment of loading spaces to the different collieries are a vexed question, as at present these are sanctioned and granted not on any fixed principle. Such evidences as were given before the 1925 Committee under this head in some form or other are not wanting at present. Without going into the cases of such misuse and abuse of powers under the Siding Agreement terms I suggest that in future sanctions of sidings and allotment of loading spaces should under no cir-

cumstances be in the hands of the Railway Authorities but should be vested in the proposed Statutory Board.

AERIAL ROPE-WAYS.—I would suggest for the careful consideration of the Committee whether it is feasible and practicable to construct network of rope-ways in the coalfields by the State Railways to bring coal from different collieries at certain central points. This would not only to a great extent eliminate the present difficulties of supply of wagons (both pilot and transportation) at different small Collieries but would also release a large quantity of coal that is now being locked up under innumerable assisted sidings. While returning from the loading wharf these empty tubs might usefully be utilised for loading sand and stowing materials from the different central Depots to the Collieries.

Questions 19 and 20.—No observation to make.

Question 21.—I consider the suggested group system of freights as more equitable and just.

Question 22.—It is not at all a practical proposition. Want of sufficient stacking grounds and financial resources and deterioration of the quality of stacked coal stand in the way of introducing this system.

PART V

(RAISING COSTS)

Question 23.—No observation to make.

Question 24.—I would refer to pp. 5 to 8 of my pamphlet on 'Coal Restriction Scheme' published in 1934 on the effect of the use of coal-cutters. As the latest statistics are not available I am quoting *in extenso* from my previous publication. The condition is the same as it was then existing. If the Committee recommends the conservation of high grade and metallurgical coal then the question of the use of coal-cutters would hardly arise as mostly the collieries producing high grade and metallurgical coal use coal-cutting plants in their mines.

THE LABOUR AND THE RESTRICTION SCHEME

" Now I would try to show that the interest of the labour and small mines is almost identical, i.e., if the small mines exist, the labour live. It is, therefore, really very amusing to find that the Indian Mining Association which represents mostly big mine-owners, has, on the contrary, found out that for the unemployment and wage reduction in the coalfields, the small mine-owners are mostly responsible, as would be evident from the following lines which appear in para. 10 of its letter recently addressed to the Government of India in the Department of Industries and Labour on the subject of the Coal Restriction Scheme : 'The Committee are also aware that such collieries (small-collieries) are

permitted to continue in their uneconomic sales campaign by the reduction of their costs in paying wages to their labour, which cannot, it is doubted, reach even a bare subsistence level and the fear has been expressed that restriction scheme or no restriction scheme, these malpractices will continue to the detriment of the other members of the industry, and result in valuable seams of coal being permanently lost to the country. If anyone would care to examine the statement of the Association critically, taking into consideration the increase in the number of coal cutting machine in big mines since 1923 with a view to reduce the number of labourers employed, it would not be very difficult to find out where the rub lies. In order to substantiate my argument I am quoting the following figures culled from the reports of the Chief Inspector of Mines in India :—

Year	Total output in British India (In Lacs of tons).	No. of mines under Mines Act	No. of miners employed (In thousands)	No of coal cutting machines
1923	187	942	182	93
1924	202	846	187	114
1925	199	810	173	125
1926	200	722	170	126
1927	211	644	165	141
1928	215	556	164	146
1929	223	548	165	173
1930	226	549	169	202
1931	205	540	158	195
1932	187	515	148	157

From the above statement it would be noticed that since 1923 raisings were gradually increasing right up to 1930 and then the same began to fall, and in 1932 the total output in British India was practically the same as that of 1923 though the number of working collieries has steadily declined from 942 in 1923 to 515 in 1932. From the standpoint of labour, it would appear that whereas in 1923, to raise 187 lakhs of tons of coal about 182,000 labourers on an average were employed daily, about 148,000 labourers, i.e., 34,000 less labourers were employed in 1932 to raise practically the same quantity of coal. The cause for this enormous reduction both in the number of mines and miners since 1923 is not far to seek. Anyone who will carefully go through the above figures would no doubt agree with me that this is chiefly due to the introduction and greater use of coal-cutting machine by bigger mines with a view to increase their output by eliminating manual labour to a great extent. An idea as to how with the increased number of coal-cutting machine the raisings in British India have steadily increased from year to year with simultaneous reduction of the number of mines and miners employed can be formed from the fact that whereas in the year 1923 the total number of such machine was 93, it stood at 202 in 1930, the peak year of the raisings and came down to 157 in 1932 with the consequential decrease in the output. Nobody can dispute the fact that the direct effect of the introduction of coal-cutting machine has been the elimination of labour to a great extent. If the number of labourers employed in a mine is re-

duced, some of them are consequently thrown out of employment which necessarily means that the supply of labour exceeds the demand with the ultimate result that the wages tend to fall. This is what has exactly happened in the coalfields. Another effect of the use of coal cutting machine by big mines is that for using the same they have been compelled to increase their raising enormously, and to dispose of their stocks they have, due to competition amongst themselves, been forced to cut down continually the prices of their coal to such a low level that the other mines have been forced to do likewise, and in many cases, finding the prices too unremunerative, have been compelled to close down the mines altogether. Finding that the rates obtained by selling their products was not leaving any margin, these mines have also drawn upon their labourers' wages to adjust their raising cost.

A critical and unbiased study of the low prices of coal *vis-a-vis* unemployment problem in the coalfields reveals that the use of the coal-cutting machine is one of the important factors in bringing about the present state of affairs in the trade. If it is feasible to stop the use of coal-cutting machine, I am confident that immediately there would be a demand for more labourers. For instance, I have already shown that though in 1923 and 1932 the same quantity of coal was raised, 34,000 less labourers were employed in 1932, and if we assume that in 1935, 187 lakhs of tons of coal will be raised without the help of coal-cutting machine, there would in all probability be an additional demand for approximately 34,000 labourers. This extra demand of labourers would create an atmosphere of an all round rise in wages in the coalfields and this rise in wages would surely reflect on the general prices of coal, and thus it would bring about a buoyancy and the much desired restoration of confidence in the trade.

Viewing the problem from another standpoint, the idea of abandonment of coal cutting machine cannot but be too strongly advocated. We all know that due to the gradual elimination of women labourers from working in the underground mines, income of each labourer's family has been reduced by nearly half. It is therefore, desirable that efforts should be made to investigate whether the problem of low wages and unemployment in the coalfields can be solved in this way.

It may, of course, be argued that in this machine-age any plea for abandonment of mechanical devices is an absurd one. But it must not be forgotten that a desperate situation requires a desperate remedy. Further when conditions in India differ widely from those of other industrial countries and when the labour in this country is not so dear and scarce, there is at present no necessity for adopting mechanical devices.

It cannot be denied that the effect of Restriction Scheme would be to keep about 393 collieries which stopped working prior to 1930 closed during the period of its operation. There is no iota of doubt that of these 393 closed collieries more than 95 p. c. are small ones. I believe that the interest of labourers is interlinked with that of the

small collieries, and any restriction scheme which is not designed to help those closed collieries, would not improve the labourers' economic condition. The Government should, therefore, carefully consider the question whether the proposed scheme would or would not adversely affect the interests of the labour before accepting the present scheme."

Question 25.—No observation to make.

PART VI

(RAILWAY COAL REQUIREMENTS)

Question 26.—The coal purchase policy of the Railway Board is certainly detrimental to the coal industry.

Questions 27, 28, 29, and 30.—No observation to make.

PART VII

(STOWING)

Question 31.—The Stowing Act being only a safety measure voluntary stowing by collieries producing inferior grades of coal as adopted by the big collieries producing high grade coals is hardly in the picture. It is commercially impossible for collieries producing inferior grades of coal to resort to voluntary stowing unless 100 per cent. assistance is extended to them. Until and unless the Stowing Act is amended and based on the principle of conservation and compulsory stowing is enforced in all cases irrespective of quality, no further success can be expected under this head.

Question 32.—No observation to make.

PART VIII

(MISCELLANEOUS)

Question 33.—A quicker acquisition of surface land in the province of Bihar is possible under the Chota Nagpur Tenancy Act but there is no such facility in the province of Bengal. Bengal Tenancy Act should be amended in this respect on the lines of Chota Nagpur Tenancy Act.

Questions 34 and 35.—No observation to make.

Question 36.—I suggest that the Fuel Research section should be attached to the proposed Statutory Board. I would also suggest that the Coal Grading Section should also be attached to it.

Question 37.—No observation to make.

Question 38.—Yes.

Question 39.—If it is the present Mining Education facilities then there are some at present but not adequate and more is needed.

If it is the general education for the mining labour and their children, only a few collieries

have got some arrangements for teaching the children of their miners.

I believe that if some State-aided cottage industries such as poultry farming, hand-loom weaving etc. are started at various centres under the joint supervision of groups of collieries and with the improvement of housing conditions, a settled and contented labour force would gradually grow within the coal mining area.

I have not touched on the question of wages which may be dealt with on the footing of wages in other industries, subject to additional remuneration for under-ground workers.

Question 40.—I consider that the proposal for building separate model miners colony in the coal-fields through the Welfare Board is not a sound one. It would have been better had the Welfare Fund been spent in improving all the existing villages within the coal-fields on a model line and in helping the different collieries with grant of subvention for improving their respective miners' dhowrahs on an approved model. This step, if taken, would have been a great source of a settled and contented mining population throughout the coalfields. I consider that the present Welfare Fund is not in all cases well-spent.

QUESTIONNAIRE II

PART I

(CONSTITUTIONAL)

Question 1.—The dual control and division of responsibilities between the Central and Provincial Governments in respect of matters affecting the coal industry is far from satisfactory. All matters relating to mines and minerals including the rights and powers to levy cesses and taxes on coal industry should be dealt with by the Central Government. The different rates of cesses and taxes now imposed by the Provincial Governments of Bihar and Bengal on coal industry in their respective provinces conclusively show the present unsatisfactory constitutional position. It is necessary not only in the interest of India as a whole but in the interest of the coal industry itself that this key industry should be under the Central Government or in the alternative both the Jharia and Raneegunj Coalfields should be under one provincial control.

As an instance, I would point out that in the Jharia coal mining area within the sub-division of Dhanbad the Government of Bihar in spite of repeated protest have forced up the price level of rice required for mining labour in comparison with that of the adjoining districts and sub-divisions. This fact was admitted in the Central Legislative Assembly. In the province of Bengal the Cess Deputy Collector, Burdwan, with a view to collect more road cess had inflated the profits of a colliery in an amazing way. He did not allow the value of free fuel given to the labourers and added such value of coal to the profits and assessed on it. He did not accept certified Balance Sheets of the Auditor and added large amount to the

revenue income of a colliery on the ground that the coal should not have been sold to the Government and Railways at lower than the public rates and calculated the difference in the value as profits. He also added to profits the value of coal used in boilers for dewatering a mine in spite of the fact that the Chief Inspector of Mines in India certified the quantity of coal used in boilers as fair and reasonable. In the province of Bihar road cess is assessed both on profits and despatches as well. I might mention here that no other industries pay road cess at all.

Question 2.—It is desirable that there should be one separate Central Department of the Government of India to deal with all questions relating to mines and minerals in charge of an Honourable Member of His Excellency The Viceroy's Executive Council.

PART II

(ECONOMICS OF THE COAL INDUSTRY)

STRUCTURAL ORGANISATION OF THE INDUSTRY

Question 3.—The Structure of units of production in the coal industry has considerably changed specially during the last world war and is at present in a most unsatisfactory condition. The following is the approximate picture of the present structure of the Indian coal industry as I see it:

(a) A group of non-Indian Managing Agents represented by the Indian Mining Association who have other industries under their control. They now exercise great influence specially through their raising contractors and monopolist middlemen and other friends who also are owners of collieries over the other two Indian coal trade organisations. The Indian Mining Association controls the largest output of coal in India and have some Indian members on its list. In spite of the fact that the majority of the share holders of the coal companies under their management are Indians and in spite of the fact that there are some Indian members of the Association, Indians were never taken on its Committee except on two occasions for a short period. Its high rate of subscription also stands in the way of small Indian mine-owners to enlist as its members. Correctly speaking the Indian Mining Association is an organisation of Managing Agents of Colliers.

(b) The Indian Mining Federation. It was originally started in 1913 to represent the interests of small collieries *vis-a-vis* the interests of big collieries. Since the war, however, some of its prominent members got them interested in other industries and also became owners of some large

mines and as such the top ranks of those who are now controlling the Indian Mining Federation have come under the indirect influence of other powerful interest.

(c) The Indian Colliery Owner's Association

It was started a few years ago by some who seceded from the Indian Mining Federation chiefly on the question of representations on the different bodies. This institution is mainly dominated by the raising contractors-*cum*-colliery proprietors, big dealers-*cum*-colliery proprietors, monopolists-*cum*-colliery proprietors, Storage and Foodgrains suppliers-*cum*-colliery proprietors.

(d) Large numbers of individual small mine-owners working either under partnership or through private registered companies. Finding their interests are not being properly safeguarded by the other two existing Indian coal trade organisations, some of those mine owners have started recently another organisation under the name and style of the Indian Collieries Union.

(e) The Railway owned collieries working under the management of the Chief Mining Engineer, Railway Board who also is the purchasing authority of all coal required by the Government and the Railways. He employs several big raising contractors under him. These raising contractors also own large number of collieries and now more or less dominating the two Indian Coal Trade Organisations. The Chief Mining Engineer, Railway Board, is also the President of the Indian Coal Grading Board, the President of the Soft Coal Cess Committee and is acting as the Deputy Coal Commissioner under the Colliery Control Order. His position as employer of raising contractors, as purchaser of the large quantity of coal in India, as President of the Coal Grading Board and Indian Soft Coke Cess Committee and lastly as the Deputy Coal Commissioner (Production) with powers to distribute stores has a definite demoralising influence on the Indian Coal industry. One can easily imagine how difficult it is for a mine owner unless he is very powerful, to criticise any of his actions which might incur his displeasure. If he chooses he can easily influence all the activities of the Indian Coal Trade Organisations.

Equally unhealthy is the picture of the distribution side of the Colliery Control

Order. I mean the Deputy Coal Commissioner (Distribution), with unlimited powers under the Defence of India Act without any control by any Board, assisted by innumerable junior officers. This Department has also created an atmosphere which has reacted on the structure of the coal industry specially the Indian section.

It was found in practice that in their anxiety to purchase peace with the coal trade organisations both the Deputy Coal Commissioners (Distribution) and (Production) were more anxious to satisfy the Executive of these organisations, who in their turn in later years paid more attention to meet those officers at social gatherings than at meetings to ventilate and fight for the just grievances of the trade.

- (f) Industries like Iron and Steel Companies and Cement Factories and a few other concerns owning their own mines and operating under their own control.

No one can deny that the interests of these groups are not identical and on many points adverse to each other.

Due to both the Provincial Government and the Central Government insisting that Foodgrains and other stores would be distributed through the three Coal Trade Organisations only, all collieries were obliged to become their members, knowing that their other interests would not fully be served by them.

As an instance I would point out that couple of months ago the three coal trade organisations jointly supported the proposal to continue the colliery control scheme for another year. I have not heard such thing in any other trade where trade organisations themselves do not want to function through normal trade channels and wanted war time control to be continued. It would also be noticed, and if I am correctly informed, that the three coal trade organisations have jointly submitted their answers to the first set of questionnaire issued by the Coalfields Committee. It is hardly possible to believe that there could be unanimity of opinion between the owners of big collieries producing high grade coals and small collieries producing inferior grades of coal. Their interests are certainly not identical and are basically different. One wonders, if it was found feasible to submit one set of answers by the three bodies why not have one body only?

I am of the opinion that both in the interest of the country and the coal trade itself, it is necessary to have sound economic structure of the coal industry based on healthy trade units and organisations which should be helpful to the trade and useful to the state. If a Statutory Board is established to deal with the different aspects of the coal industry then it should consist of representatives of the coal industry *elected directly* by the collieries and not through any coal trade organisations. If the policy conservation

and partial nationalisation of coal mines is adopted by the State then the structure of the Indian coal trade would compose chiefly of second grade mine-owners. The Indian Mining Association as the biggest producer would not then be in the picture. I suggest that all collieries should be grouped separately according to quality of coal produced and each group should be represented by direct voting on the proposed Board.

In this connection I would also suggest that industries owning their own mines and the Railway owned collieries should not be allowed to despatch coal to other consumers and must use for themselves coal raised from their respective mines.

My detailed criticisms on the administration of the Coal Control Scheme, specially with reference to the distribution and allotment of coal wagons would be found in my two pamphlets published under the caption "The Coal Control Scheme" and "The Coal Front", copies of which have already been forwarded to the Committee for their perusal.

Question 4.—Fundamentally the system of Managing Agency is not wrong. Some statutory conditions and safeguards based on democratic principles regarding the terms of the Managing Agency Agreement may be provided by further amending the Indian Companies Act.

Question 5.—There is not much unhealthy factor in the type of alliance between units of coal production and consuming interest except in the case of Railway owned collieries.

Question 6.—The Railway owned collieries are responsible to a great extent for the deplorable condition of the Indian coal industry. The facts are all recorded history and need no repetition. The Government as the largest buyer of coal have all along used these collieries as levers to depress the coal market which not only affected the economic structure of the coal industry but reacted very adversely on wages of mining labour.

OWNERSHIP AND MANAGEMENT

Question 7.—The first step necessary to solve the problem of the coal industry is for the Government to acquire all coal mining royalty rights in permanently settled areas on the lines of the Coal Act, 1938 of the United Kingdom. The State should also take power to revise if and wherever necessary unilaterally defective provisions in existing leases.

Difference in the rates of royalties and in the terms and conditions of the lease, un-economic sizes of some collieries, irregular shapes of the mouzas resulted in much locking up and waste of coal. The leases at present generally do not impose restrictions on depillaring and do not insist on rotational method of work.

Question 8.—I am strongly opposed to the proposal of administration by the State of coal properties on behalf of the owners. This would only result in creating another set of powerful group of Managing Agents to be known as glori-

fied raising contractors under the Government. From the point of view of owners of small collieries the suggestion is open to serious objection. If given effect to, it would for all practical purposes only find some occupation for those Managing Agents who might lose their present job because of the fact of their collieries either being nationalised or conserved.

Question 9.—In the event of mineral rights remaining undisturbed only some of the terms and conditions of the lease may be restricted and revised by passing an Act, but under no circumstances the powers to grant any lease or right to transfer any lease should be restricted. If this is done it would result in big capitalists influencing the State to grant leases only in their favour. There should not be any State control over the 'power' to lease coal-bearing lands.

Question 10.—At present it is desirable that the State should in the first instance acquire the coal mining royalty rights. Save in the cases of conservation there should not be any State control over production and distribution except on the question of the rational use of the different kinds of coal by the different industries on the advice of the Fuel Research Board. As regards marketing less the Government interferes the better. All collieries must be free to operate through normal trade channels. The Government should, however, fix a minimum floor price for each grade of coal to ensure payment of good wages and for providing funds for adequate development of the respective collieries.

FINANCE

Question 11.—I am not aware that a large number of collieries are under-capitalised. If any help is needed it is the small private owned collieries that need financial assistance for purchasing machineries to equip their mines for the purpose of increasing their output. Once the question of conservation and nationalisation is finally decided upon the problem will solve itself as in that event very few big colliery companies would be left to work and the problem that would be left then to be solved would be the problem of mostly private owned collieries producing inferior grades of coal.

Question 12.—No remark to offer.

PRODUCTION

Question 13.—The principal reasons for low *per capita* output of coal in India are :—

- (a) Miners are mostly agriculturists and do not work throughout the year. Their attendance even during the same month is not uniform.
- (b) Due to short supplies of wagons which has become a permanent feature in this country most of the small collieries are not in a position to employ their miners fully as they have not the facilities to keep large stocks.

- (c) Government interference in the production of 2nd class coal and in the matter of distribution of wagons under the Colliery Control Order (although small collieries are the potential sources of increasing output.)

Question 14.—In my opinion the following steps if taken, would improve *per capita* output :—

- (i) Increase of wages proportionate to increased production ;
- (ii) Re-introduction of prohibition in the coal fields ;
- (iii) Improvement in the wagon supply in the coalfields.
- (iv) Better housing accommodation.

Question 15.—There is no doubt that the system of coal-raising contractors tends to improve output but this system has resulted in unsystematic mining methods in some cases.

Question 16.—In my opinion most of the collieries producing 1st class coal have already got their peak raisings. The only course to make up the deficit in production is to encourage and help small second class collieries to increase their output and extend wagon facilities.

DISTRIBUTION AND MARKETING

Question 17.—I am not in favour of creating a Central Marketing Agency for sale and distribution of coal. This would again create a combination of dealers and monopolists. The Government interference is equally unwelcome. Let the trade freely adjust the price. The consumers are sufficiently intelligent to know what price to pay for what particular coal on practical results. There should not be any price control but to ensure good wages for payment to the labourers a minimum price for the different grades of coal should be statutorily fixed. The trade should develop on normal trade channels. Marketing Agency, if established, should only be voluntary amongst the collieries or group of collieries but care should be taken that this may not lead to the formation of monopolistic ring. I am in favour of complete regulation for the use of the different coals for different purposes. The war-time practice must be discarded.

I suggest the outlines of the following scheme for consideration of the Committee :—

(i) State :

- (a) State should own and purchase all coal mining royalty rights.
- (b) Should nationalise all mines that are now *exclusively* producing high grade metallurgical and high grade steam coal.
- (c) Stop raisings of all such coal from the railway owned collieries.
- (d) Restrict the despatches of high grade metallurgical and steam coal only to particular industries from those collieries which are producing both inferior grades of coal and high grade metallurgical and steam coal.

- (e) Restrict the use of metallurgical and high grade steam coal in Railways and other Government departments.
- (f) Restrict shipment of high grade metallurgical and steam coal.
- (g) Introduce lower freight rate for inferior grades of coal.
- (h) Establish a Statutory Coal Board unifying with it the functions of Coal Grading Board, Stowing Board, Soft Coke Cess Committee, Welfare Board, Rescue Board and attach to it the Fuel Research section of the Geological Survey of India.
- (i) Create a new department under the proposed Statutory Coal Board for the purpose of extensive prospecting and survey of coal-bearing lands of both proved and unexplored coal land by diamond drill borings and analysing each seam that would be tapped in the bore holes. It may be interesting to know that upto this time it is the general belief that qualities of coal of seams below 10 seam are of inferior grades. But it is a fact that there is a lower seam of fairly good thickness the quality of which according to the present Grading Board's standard is of good metallurgical class.
- (j) Unification of cesses and taxes as suggested.
- (k) A separate wagon transport Board should be established consisting of best and efficient transport officers to deal exclusively with the question of coal transport from coalfields to Factories.
- (ii) **The Collieries ;**
- (iii) **The Managing Agents; or Proprietors ;**
- (iv) **Merchants and brokers, and**
- (v) **Consumers of coal.**

Regarding the above their respective role should be left to the free choice of each group according to the normal practice of the coal trade.

Unless it is envisaged that short supply of wagons in the coalfields would be a permanent feature the question of fixing sales quotas does not arise at all because in my opinion for many years to come, production of coal in India would not much exceed the country's potential demands for coal. In any case fixing of sales quota is open to serious objection as it means indirect restriction of output. In case of wagon shortage the situation could be met by *Pro rata* distribution of wagons.

Question 18.—War time practice should always be discarded in all cases. I entirely agree that the condition precedent to this proposal must be to have a complete analysis of all Indian coals and also scientific informations about the actual need of the different kinds of coal by the different industries gathered through the Fuel Research Board.

Question 19.—No remarks to make.

Question 20.—If there is a direct relation between the collieries and the consumers, the responsibility would automatically be on the colliery who would be always anxious to satisfy its customers. The system now being worked under the Colliery Control Order is defective in this respect. The consumers must be allowed to choose their own coals and if this principle is adopted the problem would be solved by itself.

Question 21.—The present standard of the market about the different sizes is quite satisfactory and need not be disturbed.

TRANSPORT

Question 22.—In view of the present geological distribution of the different grades of coal the distribution of wagons on a zonal basis based on transport economy and on fuel value is not practicable. Whatever it may be the case for the Railways the suggestion is not based on national economy. As an instance I would point out that coal for brick burning should be of inferior grade irrespective of the distance of the place where it is consumed. If the principle of transport of coal is based on economic value and range then the brick manufacturers at a long distance will have to use high grade coals and not low grade coals.

Question 23.—There is no harm of pooling of rail freights provided it is fixed on a just and fair principle.

Question 24.—I have already stated that for the purpose of conservation and to encourage the use of more inferior grades of coal by the different industries the railway freights for inferior grades of coal should be lower than the railway freight for better grade coal distance for distance.

Question 25.—The railway freight should be based on the principle of what the traffic can bear.

Question 26.—I am definitely opposed to any reduced freight rate for train-loads of coal consigned to one consumer. This would lead to disastrous results for the following reasons :—

- (1) Increase in the supply of Rakes which would reduce the available number of wagons.
- (2) Concentration of orders of big consumers on a fewer collieries which would lead to maldistribution of orders which might affect pilot capacities in some sections.
- (3) Place big industries at a great advantage over the small industries (due to lower fuel bills) who are not in a position to take full train-loads of coal.

Question 27.—By introducing various routes during war-time, there is no doubt that the transport of coal has been handicapped. The route restrictions should be as few as possible.

Question 28.—No comment to make.

PRICE AND PROFITS

Question 29.—A return to free competition is certainly desirable. Having regard to the con-

conflicting nature of interests of the different groups within the industry itself I do not consider that the coal trade can work out on voluntary basis, a system of fixed prices for different grades of coal. It is hardly possible to counteract the natural effect of law of supply and demand. If the production is low, inspite of fixed prices there would be premium on rates. Government interference would create only Black-markets and/or corruption. Under the present conditions it is impossible to estimate the margin for the inter-play of supply and demand to maintain a stable price. The real factor in the fluctuation in the rates of coal in the past was the wagon supply in the coalfields.

Until and unless the policy of the Government is definitely known about the conservation of metallurgical and high grade steam coals and the rational allocation of other coals amongst the different industries it is hardly possible to take due note of the coal requirements in the country, industry, by industry in its post-war reconstruction as the required quantity would differ considerably. What is wanted is the fixation of minimum floor price of each grade of coal by Government as would enable the collieries to pay sufficient wages to the labour and to meet their development costs. The less interference by the State the better. A direct and free relation between the colliery and the consumers is desirable and is the best method to level the price on economic basis.

Question 30.—If the minimum prices of the different grades of coal are fixed in cases of coal purchases by Indian Government Railways and Iron & Steel Companies only, it would provide sufficient impetus for achieving stable conditions in the industry. But this step would not be sufficient to meet the situation.

Question 31.—If Government intervention is found necessary in fixation of coal prices it should be done by a Board consisting of representatives elected directly by the collieries producing different grades of coal. Under no circumstances such representatives should be elected or nominated by the existing coal trade organisations. A direct election is an absolute necessity to safeguard the interests of the different sections of the coal trade.

Question 32.—I consider the present difference in the price of coal between the different grades of coal as classified under the present Colliery Control Order is fairly satisfactory.

Question 33.—Much would depend on the amount of tax and cess that the trade would have to pay in future. There cannot be any uniformity of profits even amongst the adjoining collieries producing the same quality of coal because of the differences in their respective royalties, in the terms and conditions of the lease, working facilities in the mines and overhead charges.

Question—34. The question of middleman's commission is not an important factor in a free coal industry. There was and there is nothing

to prevent the consumers to get their supplies direct from the collieries. If they go through middleman the choice is theirs and not of the collieries or of the middlemen.

TAXATION

Question 35.—There is absolutely no doubt that the coal industry is subjected to unduly heavy and multiple cesses and taxes. No other industry in India has to pay to road cess, Health Board cess, Water Board cess, Production cess, Welfare Board cess, etc. I suggest unification of all the cesses and taxes now being paid by the coal industry. Such unified cess should be collected along with the railway freights at the destination from each consignment of coal as it is being done in some cases. All local bodies, such as District Boards, Health Boards, Water Boards and other Boards should get out of the central fund their respective average per ton income for the last six years. Detailed scheme on this point will be found in my book "Coal Conservation" published in 1936, copies of which were forwarded to the Committee.

NATIONAL AND INTERNATIONAL COMMERCIAL POLICIES

Question 36.—Subject to my previous remarks on the export of coal I think some special provisions are necessary in the international treaties and trade agreement securing reciprocal imports into this country of other minerals from those countries.

Question 37.—International conventions in respect of colliery labour without taking into consideration the different conditions both social and economic in the East have not always satisfactorily served the interest of the Indian Mining labour.

CONSERVATION OF HIGH GRADE METALLURGICAL COAL

Questions 38, 39, 40, 41, 42, 43, & 44.—No comments to make.

Question 45.—In view of the known deposits of metallurgical coal *vis-a-vis* mineral ores in this country there is no question that a definite case exists now for restricting the use of metallurgical coal to iron and steel works only.

Question 46.—Same answer as above.

Question 47.—Please refer to my answer to question No. 17 and to my pamphlet "Coal Conservation" published in 1936. The scheme I suggested there had considerable Press support.

Questions 48 and 49.—The same answer as in Question No. 47.

PART IV

(CONSERVATION OF HIGH GRADE STEAM COAL)

Question 50.—No comment to make.

Question 51.—This question has been thoroughly dealt with by the 1937 Committee. Nothing further to add.

Question 52.—The same reply as in question No. 51.

Question 53.—Arguments in case of metallurgical coal equally apply in the case of high grade steam coal.

PART V

(Conservation generally).

Question 54.—No comment to make.

Question 55.—I think existing mining regulations in respect of first workings need careful revision. The last amendments of the various mining regulations were more or less of a panicky nature. Regulations about the maximum height of coal gallery sometimes cause waste. In any case these regulations should be carefully revised with due regard to both safety and maximum extraction.

Question 56.—I agree with the suggestion of the Coal Mining Committee on the question of rotational workings. The control should be exercised through the mining regulations and by amending the Mines Act.

Question 57.—I have already stated in my previous answers that the Stowing Act should be amended on the basic principle of conservation. It should be in respect of all seams irrespective of grades. The extent of assistance from the stowing funds should be 100% at least for inferior grades of coal as it would not be economically possible for collieries producing inferior grades of coal to adopt sand stowing without 100% assistance.

Question 58.—Yes, the Government should undertake the work of delivering sand for stowing and should acquire sand rights and distribute the sand to the different collieries by constructing overhead ropeways.

Questions 59 to 64.—No comment to make.

PART VI

(Mining leases and fragmentation).

Question 65.—No comment to make.

Question 66.—The omission in the leases providing for instroke and outstroke working sometimes retards coal production in adjoining areas owned by the same colliery company. Differences in the rates of royalty also stand in the way.

Question 67.—No comment to make.

Question 68.—Government should not interfere save and except in such matters as were suggested in my previous answers.

Question 69.—Uneconomic colliery holding does not necessarily mean small holding. Working conditions both underground and surface, siding facilities and other factors are to be considered.

Question 70.—It is difficult to define what is an uneconomic colliery holding. Much would depend on the then market conditions. An uneconomic holding of to-day might be an economic holding of tomorrow and *vice versa*.

Question 71.—I doubt whether any one can define what is the proper economic size of a colliery holding. A small colliery along the strike line might be very economic while a very big colliery full of underground disturbances with lesser width along strike line would be an uneconomic unit. Any attempt to define an economic holding by size would be fruitless.

Fragmentation of colliery holdings is no doubt undesirable. The first suggestion is no doubt the best. In my opinion the appointment of a special officer to negotiate between landlords and tenants with a view to amalgamation of leases where suitable on voluntary basis should at first be attempted. If a legislation to enforce amalgamation is found necessary powers should be vested in a committee of experts for final decision.

PART VII

(Opening of New Coalfields)

Question 72.—There are untapped and partially exploited deposits of coal in this country. In my answer to question No. 17 I suggested for the establishment of a Board to carry out survey operation to explore such fields. Even in the Jharia coalfields all the lower seams below seven, have not yet been fully tapped and explored.

PART VIII

(Administrative measures).

Question 73.—I have already suggested in my answers to question No. 35 that the unified cess should be collected by the Railways at the destination from each consignment as it is being done in some cases at present.

A complete scheme for the administration of the funds and realisation of cess for the unified scheme and for payment of royalty rights would be found in my book "COAL CONSERVATION SCHEME."

Question 74.—Please refer to my answer to question No. 17. Whatever may be the composition of the Statutory Body I repeat again that the representatives of the coal trade should be elected by direct election and not through any trade organisation.

Question 75.—It is certainly advantageous to unify the multiple bodies dealing with utility and health services in the coalfields. As a member of the Asansol Mines Board of Health for several years I found it absolutely necessary to have a unified Health Board in Bengal and Bihar coal fields. The money thus saved for one administrative overhead staff could be well spent in real service to the Mining Labourers. I include in expressing this view, the activities of Labour Welfare Board, District Board and Water Board. It would ensure uniformity both in policy and action.

SUPPLEMENTARY

ANSWERS GIVEN BY S. C. GHOSH TO THE FIRST
AND SECOND SETS OF QUESTIONNAIRES ISSUED
BY THE INDIAN COALFIELDS COMMITTEE,
1945.

PRELIMINARY

Questions were asked and answered on various important issues bearing on the coal industry in the course of oral evidence given by the representatives of the four coal trade organisations. Having watched these proceedings closely and given evidence on behalf of the Indian Collieries Union, I consider it necessary to clarify further some of my written Answers which were already submitted to the Coalfields Committee. For obvious reasons typed copies of the different enclosures would be submitted and not printed. It is needless to add that the observations made herein are subject and in addition to my previous answers to the different questions.

FIRST QUESTIONNAIRE

(GRADING AND EXPORT.)

Question 2.—In my opinion, no coal of any quality should be exported from this country oceanwise except the quantity that would be required to be shipped under any International Trade Agreement as previously suggested by me, before meeting the requirements of this country when either the coal or available wagons would be found short of the demand. If a reference is made to the allotments of wagons for down-country stations during the current month it would be found that indents for such important industries like Cotton Mills, Jute Mills, and Domestic Fuels, etc., were not always met for short of empties due to the fact that the available number of wagons for downward traffic were mostly taken up for shipment of coal.

Questions 7 and 8.—The grading of full working sections and of all seams worked in a colliery including Railway-owned collieries and open-cut coal mines should be made compulsory for the following reasons :

(1) Some collieries grade only the best of its working seams leaving the inferior seams ungraded. This would avoid a consumer being misled, while going through the printed grading list into thinking that a particular colliery raises only the graded coal as published in the list, and that there is no possibility of any mixture being loaded for his consignment. I cannot understand how one can suggest that although it is 'desirable' to have all the seams graded there should not be any compulsion on this point! As at present the open-cut coal mines owned both by the railways and the public can if they so choose load anything from 'apology of coal' to real coal while grading only a better section out of the entire thickness. Some time back, I brought one such instance to the notice of Mr. Faruque, the then Deputy Coal Commissioner (Distribution). Thousands of tons of such muck were despatched and certainly paid for before it could be detected.

The statutory specifications according to the Indian Coal Grading Act for the different grades of coal are not observed by the Board since it was started. As a member of the first Board I remember the fact that when the first list of collieries with their respective analysis was placed before the Board it was found that some Dishergarh and Poniaty coals would come under Grade 1 and not under Selected Grade. It was then decided to allow a grace of 2 per cent. to all collieries on the total of moisture and ash contents. This practice, I understand, is still being followed. A reference to the minute book of the Coal Grading Board on this point may be made and steps be taken to amend the Act accordingly and stop this irregular practice which is not permissible under the Act.

Question 15.—I was asked to clarify the reasons which prompted me to suggest in item (e) of my previous Answer, that in calculating the basis of wagon supply of a colliery stocks held by the colliery should not be taken into consideration. I would like to quote the answer given by the Hon'ble Member in charge of the Department of Labour to Mr. K. C. Neogy's question in the Central Assembly during the month of February, 1944.

"Coal stocks were checked at the end of May 1943 and a shortage of over two million tons was found. During 1942 a number of collieries had given fictitious figures of raising probably in order to obtain a better wagon allotment....."

Detailed facts on this point may be had from Mr. Harrison who was the President of the Wagon Supply Committee and from Mr. Faruque who was entrusted by the then Hon. Member in charge of Industry to investigate and finally decide the question.

Wagon Supply

I still maintain that the recommendations of the 1925 Committee that "in no circumstances will the system of special or emergency supplies be revived" be strictly adhered to. A few of the reasons for my contention are noted below.

- (1) It was a war time measure and not the normal procedure.
- (2) While despatches of coal are restricted under the Coal Control Order from any colliery it is argued by the Coal Control Department that they are not bound to place orders for the full quantity raised and "may" or "may not" issue any order at all.
- (3) No help was forthcoming for the small collieries generally.
- (4) Inequitable distribution of wagons giving undue preference to large collieries at the cost of small and inferior grade collieries under various excuses.
- (5) Despatches of Soft Coke (Domestic Coke), the mainstay of small Collieries were restricted and reduced by 50 per cent.

- (6) Despatches of small coal were also restricted and eye-wash sanctions and despatching instructions for small coals are issued but supplies are scarce.
- (7) Collieries are forced to despatch coal to different parties under the Defence of India Act without ensuring prompt payment. Some collieries have not yet been paid by the Control Department though the bills were submitted in 1944.
- (8) While sanction for 317 tons of slack coal required for brick burning apparently for constructing private residence was issued (Sanction No. BRKH/14/PT/SOQ, dated 21-9-45) a cotton mill's application for sanction of 10 wagons for manufacturing bricks required for the extension of the mills was issued for only two wagons. (Typed copy of the sanction No. COTB/8/R, dated 13-1-46 is enclosed).
- (9) The system of distribution of consumer goods, machineries, stores, etc. by the Department of the Deputy Coal Commissioner (Production) is not only amazing but unjust. The supplying agent is authorised to charge commissions from 10 to 25 per cent. over and above the declared controlled price. (Typed copy of a letter from a Controller of another commodity is enclosed).
- (10) A large percentage of available wagons are distributed as Specials. As an instance, during the last month wagons for coal on account of woollen mills which would require coal after several months were daily allotted as Specials, depriving cotton mills, paper mills etc. which needed immediate help.
- (11) Funds of the Production Cess should not be used for the purpose of regulating Transport. My other objections on this point will be found in my previous publications already sent (1) Coal Control Scheme, (2) Coal Front.

Question 18.—Railway sidings: Siding facilities are an essential factor in the matter of coal output. Nobody knows on what principle loading accommodations are granted on Railway Siding and on what principle assisted sidings are sanctioned. It seems to me a question of how to please and whom to please. Two typical cases are noted below :—

(1). Loading Accommodation on Railway Siding.

A Colliery applied and was granted in June, 1942 (Letter No. GL. 144/5 of 2-6-42 from the

Coal Area Superintendent, Dhanbad, E.I.Rly.) a licence for twenty wagons space. In July, 1944 the Colliery got a letter from the Divisional Superintendent, Asansol informing it that its siding space would be reduced from 20 to 10. The matter was placed before the then Deputy Coal Commissioner (Distribution) and after due investigation the Coal Area Superintendent in his letter No. GL. 144/5, dated 12-8-44 restored the loading space to 20 wagons as before. Curiously enough, after seven weeks from that date, the Colliery again was advised by the Divisional Superintendent, Asansol in his letter No. GL. 66/5 dated 10-10-44 that the siding space would again be reduced to 10 wagons. The matter was again placed before the Deputy Coal Commissioner (Distribution). On enquiry he could not trace under whose instruction such order was issued. Protracted correspondence ensued. The Colliery claimed for the restoration of the loading space as they were going to start depil-laring in certain section and also acquired an additional area which was being developed. On investigation and joint discussion, the Deputy Coal Commissioner (Distribution) in his letter No. L/Siding dated 10-1-46 restored the loading space to 14 wagons. It is nearly six months now but the Dhanbad authorities in spite of repeated requests have not carried out the order. The development work in the colliery progressed in the meantime and the raisings increased and it cannot now indent more than ten wagons in spite of the fact that the Chief Mining Engineer, Railway Board, has placed urgent orders for loco coal.

While in the previous case a colliery cannot indent and despatch more coal and failed to secure loading accommodation, in the case of another Colliery, "A" it is a different story altogether. Here, in this case, the colliery "A" did not require any additional loading space at all but still got the additional loading space constructed within fifteen days partly at the cost of the Railway and partly at the cost of the adjoining colliery, Colliery "B" which has got an assisted siding. Colliery "A" some time back wanted some additional loading space and approached Colliery "B" to allow ten wagons more loading space on their assisted siding on payment of the usual tollage of 2 annas per ton as per terms of the assisted siding agreement. This was agreed to by the Colliery "B". A few months later Colliery "A" somehow got the Railways to extend its own assisted siding for 10 wagons into the property of Colliery "B" and into the land acquired at the cost of Colliery "B" for its own assisted siding. Immediately after, the Colliery "A" cancelled the 10 wagons loading space which it was occupying under previous arrangement on Colliery "B" Assisted Siding. It would thus be seen that the colliery did not actually require additional space but simply wanted to exchange the loading space of ten wagons on Colliery "B" Assisted Siding by extending its own existing siding at the cost of the Railway on the adjoining land acquired at the cost of Colliery "B" in order to deprive the Colliery "B" from getting the tollage.

The facts stated above in respect of both the cases may be referred to the present Chief Operating Superintendent of the East Indian Railway. These are not solitary cases. Instances are known when simply to harass a colliery, licence for loading spaces on Railway sidings are renewed for three or six months only for reasons best known to them. One such instance of West Chandore Colliery has recently been brought by me to the notice of the present Chief Operating Superintendent, E. I. Rly.

Referring to the suggestion of the Indian Mining Association that collieries with raisings of at least 5,000/6,000 tons should only be permitted to have Assisted sidings, I would point out that in the Provinces of Bengal and Bihar out of approximately 700 collieries, only about 100 collieries (excluding collieries owned by Railways and Steel Companies) have raising of over 5,000 tons per month (*vide* Rly. Bases Books). So according to the suggestion made by the Indian Mining Association 600 out of 700 collieries in the Bengal and Bihar coalfields should not and must not have siding facilities. During the course of the oral evidence before the Committee the facts came out that in the U.S.A. which is the largest coal-producing country in the world there are about 6,600 collieries out of which over 3,200 have got an annual output of less than 10,000 tons. I wonder, whether these collieries have got siding facilities.

The question is, at what stage and what should be the basic factor for sanctioning an assisted siding and for granting loading licence on railway sidings.

An assisted siding is applied for at the time a colliery starts its development. The siding should be ready just before the colliery is in a position to start despatches and the total accommodation should be fixed on the potential raising capacity and the proposed development of that colliery. It must also be remembered that a new colliery cannot all at once increase its raisings. It would take some time to avail its full capacity for despatch. It is preposterous to ask a colliery to raise at first 5,000 tons a month or some such quantity and then wait for months and years to have the assisted siding constructed and in the meantime dump coal to be weathered and to block its capital. This particular point as to at what stage an assisted siding should be constructed and what should be the principal factors for sanctioning such construction should be once for all settled and defined. The Railway Company before it sanctions any Assisted Siding examines the project on the question of traffic returns and as there is a provision in the Assisted Siding agreement for an annual rental in case of less traffic and as the cost of acquisition of land and sub-grade works except that of permanent way materials is borne by the colliery, all applications for such Assisted Sidings should be freely sanctioned. The question of waste of locomotive power for serving small collieries does not arise at all as small collieries are generally grouped together and adjoining to each other and served by same pilot.

I am not aware of any single pilot in the Jharia and Katras fields where mostly the small collieries are grouped which is not provided with incidents for supplying wagons to its full drawing capacity. I suggest that:

- (a) A siding should be sanctioned and constructed on the basis of examination of its potential raising capacity and its construction should be completed as quickly as possible before the colliery is ready to start despatch.
- (b) The loading space for each colliery should be about three times its daily requirements *i.e.*, six wagons for each expected monthly output of 1,000 tons to provide for seasonal variations in raising and for the non-availability of wagons regularly in different directions.
- (c) The Railways should construct at their own expense as many railway sidings as possible throughout the coalfields at convenient places with feeder roads or ropeways leading to their respective wharves to enable groups of collieries to load at a particular point not far from their collieries by transporting coal from their respective collieries either by motor lorry or by ropeways as suggested. All collieries with a raising of less than 500 tons per month may thus be provided with such despatching facilities. The rental for the loading space on a railway siding should be fixed on the basis of annual rental chargeable from the owners of assisted sidings.

Assisted Siding Agreement :

For over a decade discussion went on between the Railway Board and the coal trade organisations at various conferences about the terms and conditions of the Assisted Siding Agreement. The Railway Board obstinately refused to delete or modify some of the most objectionable terms and conditions. The coal industry had to yield as they had no other alternative. Clause 25 of the new Assisted Siding Agreement is the most objectionable amongst others. A colliery cannot under this clause terminate the Agreement unless it pleases the Railways even when the particular colliery would not require the siding. I would also draw in this connection the attention of the Committee to Clauses 12(a), 12(c) (2), 18(a) and 18(b) of the Assisted Siding Agreement. I hope, the Clalfields Committee would look into this vexed question and express their definite views on the subject.

Question 19.—There has been considerable amount of complaints about overloading and underloading of coal wagons. Without going into the details I consider it desirable that in underloaded wagons such quantity of overloaded coal that might be available on account of that particular colliery at the weighbridge be reloaded to the extent of underloaded quantity.

This would not only remove a major grievance of collieries but would save a large unused tonnage.

Question 24.—Mechanical Coal-cutters: The question is specifically asked "*To what extent have mechanical coal-cutters replaced manual coal-cutting.*"

There is no ambiguity on this point as the question is very explicit. As to what extent mechanical coal-cutters reacted on the employment of labour, I have completely proved in my first Answers with facts and figures that it did react greatly on the employment of manual labour. There is hardly any room in my answer to consider it as a "Nineteenth Century" idea. It is not the question whether the use of coal-cutter would or would not increase the coal output. My objects for quoting in *extenso* from my previous publication on this point were:

Firstly, to acquaint the Committee with the fact that too much use of coal-cutters would adversely react on the employment of mining labour.

Secondly, in case of over-production it would be a source of unemployment of large number of mining labour and they would be thrown overboard just like III-A and III-B grade Collieries when better class coal is available on the surface.

Thirdly, it is no use talking about the betterment of the conditions of the mining labour with the possibility of throwing them out of employment at any future date when convenient; and

Lastly, it might help to dump in India a large number of reconditioned but obsolete coal-cutters at the cost of Indian shareholders which would only help to reduce India's trade balance as it has been found in the case of the purchase of open-cut coal mining plants which I understand made India to loose to the extent of couple of crores of rupees.

Question 26, 27 & 28.—RAILWAY COAL REQUIREMENTS: About the quality of Coal suitable for Locomotives and industries I would quote the following from the evidence given before the Coal Mining Committee in 1937.

(ORAL EVIDENCE GIVEN BY MR. J. A. BELL, AGENT, E.I.Rly., PAGE 525—QUESTION No. 8, PART II)

"Our new locomotives are designed to burn a comparatively inferior coal (low-grade below grade I) and there are certain kinds of running in which a comparatively inferior coal (low grade coal below grade I) is more efficient than a high grade coal."

It was in 1937 that such evidence was given by no less a person than the Agent of the E.I.Rly. With these intervening nine years all the locomotives now in use must have been designed to use low grade coals below grade I.

Let me now quote the written answer given by Mr. L. A. Jacobs, the then Chief Engineer to the collieries under the managing agency of Messrs. Shaw Wallace & Co. to question No. 61. He states (Page 150, Vol. II, evidence before the Coal Mining Committee):

"Question 61.—Inferior coal can be used for nearly all purposes for which superior coal are in ordinary use and it is only a question of adopting and industrial plant for its use whether for steam raising or for other purposes. Obviously in great many cases each adoption would have to be very far-reaching."

*Question 40.—*I doubt very much whether in the long run the present proposals of the Welfare Board to construct model colony for the mining labour would at all be helpful to the industry or only be veritable sources of trouble and discontent in the future. Concentration of a large number of mining labour in one place might be the battleground of the recruiters of the different collieries and might also tempt outsiders to play upon the minds of the mining labour and foment discontent.

SECOND QUESTIONNAIRE

*Question 4.—*On fundamental grounds the system of Managing Agency cannot be objected to. But, having regard to the statement made by the Indian Mining Association in their answer to this question that at present the shares of all the Indian coal companies "are almost entirely owned by Indian shareholders and the only interests of Managing Agents are that they receive a percentage on profits in return for supplying technical and business management of a most efficient nature" and having regard to the fact that most of the present Managing Agents of the different coal companies have other big industrial coal consuming concerns under their management, I suggest the following provisions to be made by amending the Indian Companies Act or by some other legislative measures:

- (a) That the Board of Directors for all coal companies should consist exclusively of Indians save and except the *ex-officio* members representing the Managing Agents under the Articles of Association.
- (b) That the terms of Managing Agency should be renewable at shorter periods.
- (c) That there should not be any clause of compulsory nature for renewal of the Managing Agency Agreement.

In this connection I would also request the Committee to examine carefully the following:

- (a) The Indian Year Books of pre-war periods which would show that a very large number of colliery companies owning large sized collieries with a considerable amount of capital, did not pay any dividend for years to their shareholders.
- (b) The records of the Chief Inspector of Mines in India which would show that a good number of large sized 1st class coal properties were either sold out or leased out to the Indians by the different Managing Agents presumably considering these as uneconomic colliery holdings which however subsequently proved to be very valuable. The following few names amongst others would be sufficient for my purpose:—

- | | |
|-----------------|-------------------|
| (1) Gopalichak. | (4) Khas Jharia. |
| (2) Bajna. | (5) Bansdeopur. |
| (3) Lodna. | (6) Kirkend, etc. |

Question 6.—The chief objections of the coal industry against the operation of Railway collieries may be summarised as follows:

- (1) The Railway-owned collieries have not to pay any income-tax and have an advantage of unlimited and unrestricted capital.
- (2) Have not to pay any Health Board or Water Board Cess.
- (3) Have no obligation to construct miners' dhowrahs according to any specification.

I have been told by several managers who recently visited the Railway collieries at Bakharo and Karagali that they were very much surprised to find the unsatisfactory conditions of miners' dhowrahs at Railway collieries. They felt that such conditions would not have been tolerated a single day by the authorities of the Mines Boards of Health in the Jharia and Ranigunge fields.

- (4) Railway Collieries despatch freely slack coal to the steel factories and steam coal to cotton mills and other public concerns.
- (5) Get 100 per cent. high class priority in the matter of wagon supply for all parties.
- (6) No outside check in wagon loading.

Ownership.

Question 7.—In the second para. of my previous answer to this question, I would like to add the word 'Commercially' before the word 'Uneconomic sizes' (Second line).

I do not agree that the uncontrolled grant of Mining leases for working coal properties led to

the dissipation of coal resources of the country. There was always a parity between the supply of coal and the demand of the country. The real waste was due to the policy of the Government to allow unrestricted export and use of Metallurgical and High-grade coal.

Regarding the proposal of the Government of Bengal that the royalty rights should not be paid for as the ownership of the mines and minerals really vests with the State, I would refer the Committee to the following decision of the Judges in 1568 Queen Vs. Northumberland.

"That only the so-called Royal mines (*i.e.* those of gold and silver) belonged to the Crown and all the baser minerals belonged to the individual land owner."

This view was accepted by the Royal Commission. Lord Samuel in quoting this in the report by his Commission, goes on to say:

"The Legislative not having intervened to establish or re-establish the rights of the Crown as representing the nation, the decision in the Courts in the time of Queen Elizabeth has been the undisputed law of the land from that day to this. Minerals have continually been bought and sold in reliance upon that law, and it is the basis of an important part of our system of taxation"

"There is, therefore, no doubt that if minerals which have an appreciable market value were taken from the present owners and vested in the State *there would be a valid claim for compensation.*

And to quote John Stuart Mill again:

"Possession which has not been legally questioned within a moderate number of years, ought to be, as by the law of all nations it is, complete title". Further he says: "It is due to land-owners, and to owners of any property whatever, recognised as such by the State, that they should not be dispossessed of it without receiving its full pecuniary value, or an annual income equal to what they derived from it."

Production

Questions 13 & 14.—Besides, the three reasons given in my previous answers to these questions, I would like to add the following major reasons for the present low *per capita* output. I do not agree with the views expressed by some that the present fall in *per capita* output in coal mines is chiefly due to the slackness of the miners resulting from increased wages. During transition period, we must face such situation but that should not be the reason against increased wages. The major factors for the recent fall in *per capita* output amongst others already stated by me are:

- (i) Introduction of safety measures and new mining regulations and stricter control over first workings to prevent reckless and unscientific mining in the past which resulted in big fires

and collapses in the Bengai and Bihar Coalfields. As a consequence output of large collieries have considerably dropped. *Per capita* output of big collieries and small collieries, if separately calculated would corroborate this statement.

- (ii) Unfavourable working conditions in small mines due to defective pumps and boilers which could not be repaired or replaced during the war. This resulted the miners not getting the full advantages of their shift for cutting more coal. If the working faces in mines were in fit condition they could have raised more.
- (iii) No help was forthcoming from the Deputy Coal Commissioner (Production) in the matter of repairing boilers, pumps and machineries at small collieries. It was suggested many times by me to have a few repairing squads for such work but nothing was done in this direction to help small collieries while crores of rupees were spent out of Production Cess for the purpose of helping a few big collieries (including Railway collieries) by supplying Gorakhpur labour and for the purpose of purchasing and working open-cut coal mining plants. I am definitely sure that if the amount of extra coal got by spending so many crores of rupees is estimated, it would be found that by spending far less amount, similar quantity of coal if not more would have been available from small collieries.

Question 16.—I do not think that there would be any difficulty in getting additional six million tons of coal provided wagons are made available. The only course is to make honest efforts to increase the output of small collieries and change the present policy. *This can only be done by creating a separate Board for helping small collieries consisting only of their representatives to tackle and solve their difficulties* and by reintroducing the Group Supply System by which all small collieries were assured of a minimum supply of wagons every week. This system was the best that was ever introduced in the past.

Marketing

Question 17.—I would draw the attention of the Committee to the various debates in the Central Legislative Assembly on the practical results of the efforts of the then Deputy Coal Commissioner (Distribution) and of the different Provincial Governments in this direction, i.e., appointment of marketing agents, sole agents and distributors etc. Less said about it the better.

Question 19.—The regulation of use by Railways of only inferior grades of coal is necessary from the national point of view. There

would not be any difficulty in that direction as stated by Mr. Bell, the then Agent of the East Indian Railway, before 1937 Committee.

Question 27.—Route restrictions on the movement of coal are another major problem which needs careful attention of the Coalfields Committee. These restrictions are very often imposed at important junctions on the ground of heavy congestion of loaded wagons. It not only dislocates wagon supply in the coalfields but definitely to a great extent reacts on the output of coal. The public is led to believe that such congestions are due chiefly to loaded coal wagons. It would surprise the Committee to know that this is not generally the case. The fact was, that these were due in many cases to heavy loadings of other merchandise. It must be remembered that the freight rates of other commodities is much higher than the freight rates on coal. Hence the underlying policy in all Railway administration is to conveniently overlook the importance of coal traffic. As a result, no care is taken to find out whether coal traffic is responsible for such congestion and if so, to what extent. But whenever there is any congestion at any junction the coal traffic is to suffer even if the same is due to heavy bookings of other merchandise. For the purpose of earning more revenue the Railway authorities ignore this part of the picture and regulate the traffic congestion by imposing major restrictions on coal booking. If my information is correct this should be stopped and wherever and whenever there be any congestion, restriction on booking should be proportionally imposed on all classes of merchandise on actual facts.

I would also like to draw the attention of the Committee to the recent growth of the habit of arithmetical limitations of coal loadings in different directions. I am told that this method has been introduced for the purpose of solving the congestion problem. I would ask why then in spite of all these innumerable limitations the congestion at different yards and junctions does still happen as often as it was before and the position has not improved a bit. This shows that the theory of avoiding congestion by arithmetical limitations is nothing but a brain-wave. How is it then that in pre-war days larger number of wagons were allotted on many days on the basis of "upward" and "downward" traffic only.

Question 28.—I would draw the attention of the Committee about 'short supplies' of allotted wagons in the coalfields. I have reasons to believe that some of these 'short supplies' were not really 'short supplies' but 'supplies' to other adjoining collieries. I have reported several times on this point to Mr. Faruque, the then Deputy Coal Commissioner (Distribution) and at his suggestion Mr. B. K. Roy, President of the Indian Collieries Union closely watched some cases of 'short supplies' at his collieries. It was detected in a certain case that the 'short

supply' of wagons was due to the reason as stated above and the fact was brought to the notice of Mr. Faruque the present Chief Operating Superintendent, E.I. Rly. Fuller information on this subject may be available from him. If it is possible in one case why it would not be possible in other cases? Really I cannot understand why the local Railway authorities of the East Indian Railway stubbornly oppose the proposal to make up the shortage on the next day which I understand is the practice on the Bengal Nagpur Railway. I hope serious attempt would be made by the Committee to find out the cause and the cure of this evil.

Taxation

Question 35.—I consider that the Production Cess should be immediately abolished. This was introduced for the purpose of helping the industry to raise more coal. The fact that Production Bonus has been discontinued with effect from 1st of April, 1946 definitely indicates that extra production of coal is found to be not necessary at present and it is now only a question of solving transport problem. Why then should the consumers continue to pay Production Cess for solving the transport problem which is the function of the Railway Board? The Production Cess is now used for the following three major purposes :

- (a) To meet the cost of maintaining the huge uncontrolled Coal Control Board staff who naturally would never agree to liquidate themselves voluntarily and try to justify their necessity.
- (b) To meet the deficit to the extent of several crores of rupees for supplying Gorakhpur labour to a few collieries at less than the actual *per capita* cost.
- (c) To meet the deficit to the extent of several crores of rupees for working the open-cut coal mines for the benefit of handful of mine owners.

The Coal Control Department should not be made a dumping ground for surplus officers at the expense of the coal consumers. Besides, the function of both the Deputy Coal Commissioner (Production) and the Deputy Coal Commissioner (Distribution) for all practical purposes, has become nothing but to make a concerted drive against the coal production itself. Various excuses to help big collieries at the expense of small collieries would beat hollow the excuses of the great lion of Aesop's Fable who wanted to kill the innocent lamb. The two Coal Control Departments have one principle for big collieries and another for small collieries and use it as often as it suits them. While the Department of Production is busy with helping only the big collieries with Gorakhpur labour and open-cut coal mining plants by not realising the actual cost from those favoured mineowners, the Distribution side cleverly bluffs the III-A and III-B Grade collieries by assuring them that they will get all orders for brick burning pur-

poses while at the same time placing orders with big collieries to clear out their stocks of slack coal of higher grades. Recently, a small colliery producing both Grade II and Grade III-B class coals was asked to supply Grade II Slack coal to the East Indian Railway. The Colliery refused to supply Grade II Slack coal on the ground of the standing order of the Distribution Department itself and offered to supply in its place III-B Grade Slack coal from its stock. But big collieries must anyhow be helped, and the Deputy Coal Commissioner (Distribution) in his letter No. RLY/EI/BRK/46 dated 25th June, 1946, transferred the order to a big colliery for Grade II Slack coal (typed copy of the letter is enclosed). I would earnestly request the Coal Fields Committee to look into this question and give their considered views on the following points:

- (1) Whether the Production Cess could be used for meeting the expenses of the Coal Control Department.
- (2) When the payment of Production Bonus has since been discontinued whether actual cost including depreciation should not be realised from those mine owners who want the help of Gorakhpur Labour and open-cut coal mining plants. Why should the Government pay part of the cost?

Question 44.—The Iron and Steel works are not utilising coal in a way in which they should do. They should be strictly forbidden to sell any coal or coke to Railways and other public consumers.

Question 62.—If by electrification of the Railways, coal consumption can be reduced and if such a scheme is found to be a financially sound proposition, it should be adopted. If the coal saving is as great as stated, it would be an additional ground for conserving high grade and metallurgical coal. The shortage in the production of such coal would be greatly made up from the expected savings of coal consumption in the railways.

Question 68.—Regarding the character of income from salami, I would quote the judgment of Lord Cairns in the case of *Gowan vs. Christee* (1873, 2 Sc. APP. 273): "A mineral lease is really a sale out and out of a portion of the land."

It would thus be seen that salami is a consideration money for disposing of certain (underground) part of the land and is a Capital income. It must also be remembered that coal is a wasting asset. I believe, this point was discussed in the report of the Royal Commission on the Coal Industry, 1925. I have already stated in my previous replies that the Government should at first be owner of coal royalties by acquiring the same on paying proper value and then tackle other problems about lease, etc. I am strongly opposed to the Government taking power to fix standard or maximum rates of royalty and regulate or abolish the levy of salami without acquiring the Royalty rights.

Uneconomic Colliery Holdings.

Questions 69, 70, and 71.—At the outset, I would like to point out that in my first answer to Question No. 71 when I stated "Fragmentation of colliery holdings is no doubt undesirable," I meant fragmentation into commercially uneconomic colliery holdings.

I have since received the following letter dated 24th June, 1946 from the Secretary, Indian Coalfields Committee, in reply to my enquiry which gives a different definition of uneconomic colliery holdings :

"Please refer to your letter dated the 21st June, 1946, regarding the term "uneconomic colliery holding" used in questions 69 and 70 of the Indian Coalfields Committee's Second Questionnaire. It is, of course, true that no owner would normally continue to work a colliery which is a source of recurring loss. But there is another aspect of this question to consider. It is alleged that the existence of small collieries frequently leads to wasteful exploitation of the country's resources in a number of ways. It is also the case that the existence of a large number of collieries ties down a larger amount of money, invested in capital, than is strictly necessary for the development of an area. In this sense, the coal industry in certain parts of India can be said to be over capitalised with the attendant repercussions on the economy of the country. Hence, while small holdings may not be uneconomic from the limited point of view of the owner, they may become so when looked at from the viewpoint of national interest."

I confess, such a view that a large number of small collieries ties down a larger amount of money invested in capital and as such the coal industry in certain parts of India can be said to be overcapitalised with the attendant repercussion on the economy of the country is not only wrong but unscientific. It is wrong in the sense that India being a poor country its industrial development should be regulated on the basis of small units. It is unscientific because if that theory is accepted there is no room for the growth of cottage industries such as handloom industry as against textile mills, cottage sugar industry as against sugar mills, etc. Besides, it is also wrong to assume that by investing in other big concerns those who invested in small collieries would have enjoyed at least the same amount of profit as he is getting at present. The long list of non-dividend paying big industries including coal, is certainly not a fair indication that it is a national waste to invest in small colliery holdings. I doubt whether any economist would condemn investment in profitable small holdings as against the investment in non-dividend paying big concerns on the ground of overcapitalisation, and not in national interest. The background of the history of the Indian coal trade has enough evidence of the desire of the powerful vested interests to kill small colliery holdings. Serious attempt almost with success was made in the year 1934 in that direction by suggesting a coal restriction scheme which, thanks to the Central Government, was turned

down at last. I apprehend the present cry of waste of pilot service for the purpose of supplying wagons at small colliery sidings is another echo of the voice to kill the small colliery holdings. It would be found on actual examination that most of the pilots are serving both small and big collieries at the same time. Would the Railway authorities produce for critical examination by the public the actual amount of loss of working hours in each of the pilots for serving these small collieries during the last six months taking into consideration the number of days on which no supply of wagons was made to these small collieries? I would request the Coalfields Committee to compare this amount of so called loss to the Railway administration with that of the figures of annual loss of each of the Railways for providing 1st and 2nd Class compartments in Railway services. It would be found that the loss in extra pilot service if any, at all, is only a fraction of the loss that the Railways are suffering in providing comforts for the 1st and 2nd Class passengers. I wonder, whether those who are raising the cry of loss in pilot service for small Collieries would agree to the abolition of 1st and 2nd Class bogies and themselves enjoy the comforts of 3rd Class travels.

In view of the definite expression that small holdings could be a commercially economic holding from the owner's point of view, I need not go into this particular aspect of the question of fragmentation. I would like at first to discuss the question of fragmentation from the mining point of view. In my evidence before the Committee on behalf of the Indian Collieries Union, I gave two concrete instances of small holdings which were and are being worked without any violation under the Mines Act and in a scientific way. More such instances may be given if required. The question of loss of coal in the barriers in small holdings if critically examined will be found of not much importance, firstly, because it is more scientific mining and prevents spread of fire and water as in panel system where barriers have to be kept at first and a large percentage of such barriers have to be left at last. If the records of the Chief Inspector of Mines since the year 1912 are examined it would be found that the great fires and collapses occurred mostly in big mines and in mines where barriers were thinned out. (Fires at Bararee, Poidhi, Layaabad, Khas Jharia, Chourashi Ekra and Damodar River Group Collieries). Too much cry is being raised for locked up coal in the barriers of small collieries. But one must also remember that the length of the boundary line of big collieries is proportionately greater than that of the small collieries and the difference for only the intermediate boundaries is not so great as it seems to be. If one considers the huge amount of locked up coal under main Railway lines and coal locked up under Trunk Roads (170 million tons) and the quantity of coal lost in fires and collapses in big mines, the quantity of coal locked up in the intermediate boundaries of small collieries would be found comparatively very much less. I am sure nobody would

seriously suggest to take out the entire length of the East Indian Railway which passes through the Coal Fields or divert all important Trunk roads that pass over the Coal Fields. The remedy lies in the introduction of compulsory sand stowing in all cases as suggested by me which would make all collieries big or small to extract the largest possible amount of coal.

As I expressed my views previously, the number of fragmentations mounted from the year 1942 in order to get additional quotas for wagon supply under the Group Supply System introduced at the time and to get additional loading spaces at the Railway sidings. The small colliery holdings were not and could not be fragmented. It was the big collieries that were mostly fragmented for the purpose stated above. If the records of the Chief Inspector of Mines are examined on this point I have no doubt it would corroborate my statement. I still maintain that fragmentation of colliery holdings is not at all a major problem of the future. Such orders against fragmentation, though evidently illegal, are now being issued even against *bona fide* applications in respect of collieries producing better graded coal and are nothing but a drive against production.

COMPULSORY FRAGMENTATION NECESSARY IN NATIONAL INTEREST

It may sound strange but I am definitely of opinion the Coalfields Committee should concentrate their attention on the other side of the picture, i.e. on the issue of compulsory fragmentation of colliery holdings having regard to the expected restrictions on the use of high grade and metallurgical coal. One can reasonably question as to how the deficit in output would be made up and how the national demand for rapid industrialisation and road development in the country is to be achieved. The only way is to force those colliery companies holding large areas either to develop and raise coal from the entire area or to fragment their properties and lease out to others so that more coal may come out of the mines to meet the immediate need of the country. I am sure such compulsory fragmentation would not be considered as a source of overcapitalisation "looked at from the view point of national interest."

The Basis for deciding the area of each such proposed fragmented unit should be :

- (1) The number of Seams in the property within 1,000 ft. from the surface and the total quantity of coal available.
- (2) The depth of the Seams from the surface, i.e., whether the property could be worked in Inclines or in Pits or both.
- (3) At what distance the unit could expect a Railway or an Assisted Siding.
- (4) The geological and geographical position of the property, i.e. whether there is any river alongside the pro-

posed unit or whether the seams are disturbed and whether the gradient of the seams is normal or very high and other advantages or disadvantages.

- (5) Other commercial factors, i.e., whether it would be a commercially economic unit.

Since the above answers were sent to the Press, I had the opportunity of hearing oral evidence given by the representatives of some Trade Organisations. I would like to answer the two very pertinent questions put to them by the President, Indian Coalfields Committee.

- (1) Should the Railways spend money for providing additional Coal wagons to be ready always to carry peak quantity and let those wagons remain idle during slack seasons, without increasing the freight rates on coal which indirectly means subsidising the coal industry ?

My answer to this question is that the freight rate should not be increased and it is in the Railway's own interest that they should not do it. Larger the quantity of coal is carried the greater would be the production of coal consuming industries. This would naturally increase the movement of such commodities from one place to another at much higher Freight rates than those of coal. Thus the Railways would be more than compensated. This might also result in lesser number of wagons remaining idle in slack seasons. Besides, one must remember that coal is a key commodity and the industrial and economic life of the country depends on it.

- (2) The other question is whether it is not to the interest of the Railways to have their own collieries running as a sort of reserve against any break down of coal supplies from public collieries.

My answer to this is that difficulties in the matter of coal supplies from market collieries in the past were definitely due to the mal-distribution of coal orders by the Railway Board. This could be proved to the hilt from the records of past acceptances. Some collieries were placed with orders for large quantities though heavily in arrears against previous contracts, thus depriving those collieries who could really deliver but offered their coal at a little higher rate.

Leaving aside the past history I would suggest that this apprehended break-down could be easily avoided if loco coal orders are distributed *pro-rata* on raisings amongst all the collieries producing loco-standard coal. This would also assure a certain minimum amount of custom to a larger number of collieries and would have a steady and healthy influence on the industry itself.

In conclusion I would like to state one more instance about the working of the Coal Control Board. A seam of a colliery was under-graded at first. On the application of the owner the coal was tested several times and found to be of higher grade. After repeated requests and reminders, orders were issued for the up-grading of coal after some months. In the meantime the colliery, I understand, was ordered to despatch coal to the various Railways to the extent of about half a lac tons.

But the colliery was ordered to bill from the date of issue of the up-grading order at higher rate which meant a loss to the colliery and a gain to the Railway Board to the extent of over Rs. 50,000/-. This is how the Coal Control Order under Defence of India rules is being used or misused.

ORAL EVIDENCE

Question.—You have advocated universal stowing. Considering the time that must be taken in evolving a complete scheme, would you suggest any order of priority as between different types of coal or different types of mines in which this universal scheme of stowing should be adopted?

Answer.—I think this should be placed before an expert committee, but I can give you my personal opinion. First metallurgical coal, then coal worked in thick seams like jambad and others where there are chances of wastage without stowing, then collieries which are starting depillaring.

Question.—Since stowing is being taken up for conserving the property, do you not think there is a case for charging a portion of the cost to the owner of the property or to the producer of coal?

Answer.—There are pros and cons for this suggestion. The owner of the property may say, that he is getting royalty as a set-off against his wasting asset. That is the point.

Question.—In your opinion, there is no case for charging the owner?

Answer.—No.

Question.—It has been suggested to us that stowing should not be enforced when the state of working in a mine would make stowing very uneconomic.

Answer.—That is the reason why I have suggested it should be left to an expert committee.

Question.—What sort of factors should be taken into consideration before a decision regarding stowing is taken?

Answer.—The first factor is how much coal will be wasted without stowing. Every class of coal, good, bad and indifferent should be saved if possible, subject to priority for certain coals.

Question.—In view of the fact that the shortage of coal over the last few years and even today is attributed by the producers to the shortage of labour, do you still consider that the introduction of mechanical mining would not be a correct step?

Answer.—I don't personally think that it is all due to shortage of labour. I don't say that the use of mechanical coal cutting plants would not increase the output. Certainly it would but I don't admit that our present difficulties are all due to shortage of labour. It is simply putting all our own faults on the heads of labour.

Question.—With reference to the effects of the migratory nature of labour would you not consider that increased mechanisation would introduce an element of stability in the matter of production?

Answer.—I don't think so and I am definite on this point.

Question.—On question 10 you are not in favour of complete regulation of the use of coal?

Answer.—Complete rationalisation and not regulation. I would say the Board should say that this class of coal is suitable for this industry but there should be no compulsion, because you will have to go into the individual cases of consumers, what sort of boilers they use, etc.

Question.—You have stated in question 17 "I am in favour of complete regulation for the use of different coals for different purposes".

Answer.—I mean these high grade coal.

Question.—Here instead of "rationalisation," you have used the word "regulation". Regulation can only be enforced by Statute and therefore, the State must take positive steps in the matter of forcing the consumers to use specific types of coal for their industries.

Answer.—What I intended was that the State should control the use of metallurgical and high grade coal and should force consumers to use certain percentage of inferior grades along with the high grade coal. So far as metallurgical coal is concerned, I definitely say that it should be restricted only to steel industries and metallurgical industries. That is what I want to make clear. I am not in favour of control for the inferior grades.

Question.—In respect of sidings you suggest a group system of supply of wagons and propose that coal should be transported either by motor lorries or by ropeways. Do you not consider it is a very expensive affair?

Answer.—I feel that the construction of siding into the property would entail some cost but a small feeder road or ropeways would not cost much. The Railway can incur the cost and realise it from the individual collieries in the form of a charge per ton. No additional handling is involved in any case. I transhipped about thousand tons of coal by lorry and found that it is a paying proposition.

Question.—In your original memorandum you supported the improvement of existing villages within the coalfields on modern lines but in your supplementary memorandum you seem to be against the proposal of the labour welfare fund to improve the housing conditions by constructing model colonies.

Answer.—I am opposed to model colonies. Instead of spending money in model colonies it should be spent in the villages in the coalmining area. That is the view expressed by the Divisional Commissioner, Burdwan. He opposed model colonies and he was right.

Question.—Could you elucidate your point that in the operation of Railway collieries there is no outside check on wagon loading ?

Answer.—Just as we have here the sample inspectors, checkers and others, they have not got them. They sit in judgment on their own fault.

Question.—In question 16 what exactly do you imply when you recommend the introduction of the group supply system ?

Answer.—That was the best system ever introduced in the coalfields. Mr. Faruque introduced it. The system was that each colliery producing 2,000 to 3,000 tons a month should get at least a fixed number of wagons. The collieries were divided into several groups and each group contains several pilots. A notification was published to the effect that each day such and such pilot would supply such and such collieries and each day 75 to 100 wagons were set apart for that group and quotas were distributed to each colliery according to their raisings. So they were assured of certain amount of despatches every week and that saved a large number of small collieries in 1942. That system has been discarded since 1943. It was in force about one year in 1942.

Question.—You state that the action of both the Deputy Coal Commissioner (Production) and (Distribution) has become a concerted drive against coal production itself. Do you mean to suggest that the net effect of the functioning of the Coal Commissioners office has been to depress the raisings ?

Answer.—Yes. If you read all my pamphlets you will find that it is definitely so.

Question.—You have suggested fixation of minimum prices. Assuming that supplies remain short of demand, as you yourself stated, for some years to come and assuming also that coal is a very necessary raw material for industrialisation, if you fix only the minimum price the producers will make undue profits ?

Answer.—Fix the maximum price also.

Question.—In order to arrive at the range of price—the minimum and maximum — would you give a place in this Price Fixation Board to consumer representatives ?

Answer.—Yes, surely ; also workers.

Question.—Is it your view that all forms of existing control should be abolished ?

Answer.—Yes, in toto, straightaway.

Question.—Do you suggest that nothing should take its place to fill the vacuum in the transition period ?

Answer.—You fix the maximum and minimum prices.

Question.—You would leave the Railway Board free to purchase what it likes, where it likes and at whatever price ?

Answer.—No. They should be roped in.

Question.—You are influenced by the fact that the Railways own collieries and also buy coal. Certain improvements can be made in that organisation to meet your objection. Then you should have no objection to the Railway Board having a seat on the Price Fixation Board.

Answer.—I have no objection with that proviso.

Question.—You have suggested the basis according to which you are proposing compulsory fragmentation of large size areas. Is it your opinion that if a large area requires development....

Answer.—I mean fragmentation of larger units into economic units, into sizes which are economical and are approved by technical experts.

Question.—Conversely, if in the older areas the basis you have given us here does not apply and if their existing units do not conform to the rules laid down, you will have no objection to compulsory amalgamation ?

Answer.—I am assuming that technical opinion favours amalgamation and also assuming that financial objections are overcome. Then I have no objection.

Question.—Will you permit any such thing as quick profit factors to interfere in this process of amalgamation ?

Answer.—Am I to understand that by this amalgamation the profits would be earned sometime later and not at present ?

Question.—There may be serious wastage of coal by the existence of small units and technical opinion may favour conservation of property through amalgamation.

Answer.—Except over the question of coal in the barrier there cannot be any wastage.

Question.—Would you not leave it to the technical men ?

Answer.—It all depends upon the composition of the technical committee.

Question.—The number of mines opened up (new or old ones closed down) is about 250 in the last few years as against the total of nearly 1,000. Is it not reasonable to conclude that if there is a depression in coal prices, most of these mines will close down again ?

Answer.—May be. That can't be helped.

Question.—You have admitted that fragmentation of a colliery is an evil. How long has this been a feature of the coal industry in Bengal/Bihar ?

Answer.—Fragmentation has become a feature since 1940 or 1941. That is to say there was no fragmentation of this type before the war. There might have been fragmentation here and there but not so much as to-day. This is due to several causes and the most important is

the allotment of wagons and another thing is if a colliery is fragmented, much less income-tax is paid.

If the income is fragmented you avoid heavy taxation. But this is only a war baby. The fragmentation in the past is not a major factor. The major factor for the future is how to raise more coal scientifically without any wastage.

Question.—Is fragmentation a continuing factor?

Answer.—No, all those factors have gone now.

Question.—You have in your answers pointed that the figures of raisings were inflated by collieries. What are the circumstances that led to that kind of malpractice?

Answer.—To get more wagons. The small collieries have very little space to show so much lakhs and lakhs of tons. I think the best course will be for the Committee to ask the Chief Inspector of Mines to produce the figures from different collieries. He should be asked to produce the figures of shortage which he found after inspection. Full particulars would also be available from the records of the Wagon Supply Committee.

Question.—You have complained that this Committee has not taken into account the recommendation made by the 1925 Committee to the effect that in no circumstances should the system of priority supplies be revived. Is it your case that even during a special emergency, supply of wagons should not have been made?

Answer.—It should have been made under the supervision of an advisory board. As you remember a cut motion was adopted at the assembly to associate an advisory board with the Coal Controller. Though the motion was passed, it was not accepted.

Question.—You seem to have much faith in boards of different kinds. Could you tell us about the experience of the working of the Coal Control Board?

Answer.—I have very little knowledge about it. I do not know whether it is living or dead.

Question.—We have been told that in the case of small collieries a very large amount of coal is locked up in the barriers which have to be maintained between one colliery and another and that if there is one big colliery covering the same area, the barriers that will have to be maintained would not contain a large amount of coal.

Answer.—Barriers will still have to be maintained for the sake of safety under the Mines Regulation. I shall give you a concrete case. I have explained in my note that under the panel system you will have to leave some barriers. I amalgamate two of my collieries, South Jambad and West Jambad. I expected to save the barrier coal and several overhead charges. I had the idea of doing it but I find that it has been of no use because the mining engineers say that 'barriers must remain because when we will be depillaring we will have

to build artificial barriers. It is better and more simple to have this barrier' and the barrier is still there. In the case of big areas the collieries work under a panel system and have to keep a large number of barriers.

Question.—Am I correct in assuming that the majority of small collieries produce inferior coal?

Answer.—Yes, Larger portion—85% or so.

Question.—Your suggestion is to leave the inferior grades out of the picture. As we have a limitless supply of inferior grade coal we need not bother about some inferior coal lost in barriers. Is that your view?

Answer.—Yes.

Question.—Then you are prepared to adopt some measure of legislative interference with smaller collieries producing better coals.

Answer.—Yes, to that extent I agree because in some cases it is essential.

Question.—Regarding conservation of coal, you have made recommendations for the prevention of waste of good, bad and indifferent coal as far as practicable. There comes a stage when coal is no longer coal and it is not worthwhile conserving at that stage. And that stage is judged by the ash content of the coal. Up to what ash content do you think coal should be conserved?

Answer.—I cannot visualise that position. If such a recommendation is made, I think it is worth preserving coal even with 60 % ash. By process of washing ash percentage could be considerably reduced.

Question.—We have been told that small holdings stand in the way of opening up and proper development of the workable coal seams at greater depths. Do you agree?

Answer.—I think small holdings are not feasible for working at greater depths from the mining point of view.

96. WRITTEN EVIDENCE OF DR. C. D. PANDEY, CALCUTTA.

QUESTIONNAIRE I

GENERAL

1. In this connection, I feel that fundamental changes even on the recommendations of the Coalfields' Committee, 1920 are necessary. Just as in the case of land the ordinary cultivator has only got the right of tilling the land and raising the crops therefrom and the ownership of the land is always vested in the Crown, similarly in the case of coalfields the lease-holder should have the right to work the minerals but the ownership of the minerals or coal should be vested in the Crown or Central Authority. Leaving this apart I come to the point raised in your questionnaire. The raising of coal-bearing fields can go on even on the Sub-divisions provided such sub-divisions

are based on a kind of co-operative association. If co-operative association is agreed upon, sections (3), (4), (5), (6), (7), (8), (9) and (10) do not arise.

So far as the recommendations of the Coal Mining Committee, 1937, are concerned, I am of the opinion that they have not gone far enough with their recommendations. Some kind of statutory authority is absolutely essential. They had lost sight of real perspective in the maze of day to day difficulties; it may be that for solving day to day difficulties they have consciously or unconsciously not been guided by the paramount interest. In my opinion the paramount interest of India makes it incumbent to fix certain ratio of extraction by means of laws and enactments which must be taken in hand for this purpose. With the present day advancement of science it can easily be achieved and the ratio of extraction in every colliery should be 90%. For this purpose compulsory sandstowing—but not the kind of sandstowing that has been done, is one of the helpful factors. I am firmly of the opinion that in order to maintain the above stipulated extraction ratio, pneumatic sandstowing will have to be taken recourse to.

I feel that unless the threat in its real form for nationalising the whole coal industry in India, as they are doing in the mother country of majority of our Managing Agents is forthcoming no substantial progress can possibly be achieved. Bluntly speaking in spite of different committees and various recommendations the working of coalfields in India has been criminal. To support my assertion I have only to refer to the annual reports of the Chief Inspector of Mines. I feel that the members of the 1937 Committee could not go beyond "measures to extinguish or circumscribe fires etc". But if they had kept themselves in touch with the scientific progress in collieries elsewhere, they would not have considered fire affected areas as lost. There are ways and means even to utilise the fire affected coal seams for national benefit. In saying this I may refer to mining by gasification. It is technically quite possible to regulate the ingress of air to the fire affected areas though the coal is gasified underground and the gases sucked from those areas can very easily be used for firing the boilers of a

Central Power Station. Such being my views in the matter, I feel it is high time for the Government to take steps firstly for—rationalising the production and secondly for conserving of coal fields.

II. GRADING AND EXPORTS

2. So far as the export of coal from India is concerned, I feel that recommendations of 1925 have no place in the era of Grade of 1946. Fundamentally considered export of coal from India can only be encouraged after one is convinced that there is enough coal to meet India's own demands. People might say that in these days of atomic energy India should not be uneasy regarding coal resources for supplying energy to different industries. But I feel that it would be too early to build hopes on atomic energy and deplete our limited resources. If however export of coal for reasons of commercial and political convenience is decided upon, the Coal Grading Board must be maintained with enhanced powers. Philanthropy does not suit a bankrupt person and export of coal from India in the present knowledge of coal resources would amount to making India bankrupt. Side by side with "Post-War Development and Industrialised India cry" the export of coal is impracticable. India's consumption before the War was in the neighbourhood of 25 million tons per annum and if all the industrialised schemes for which the nation is fermenting and the Government is planning are translated into action India's demand would reach to at least 40 million tons per annum. If I take the productive capacity, labour position and the availability of new plants into consideration I do not think that India would be in a position even to produce this target figure. If the commerce in future is regulated on a barter basis and if minerals must be the primary means of this barter so far as India is concerned I venture to suggest that there are other minerals which India can very easily spare. Hence the function of the Board with strict control should be directed towards supplying uniform quality of coal to internal consumers of India.

4. Average prices quoted. (From Indian Coal Statistics)

		Jap Rs.	Indian Rs.	S.A. Rs.	Welsh
1939	Colombo				
	Singapore (Ex. Wharf)	21/5	26/13 (nett)	26/13 (nett)	39/14 (t.i.b.)
	Burma (c.i.f.)	17/8	21/9	21/3	..
		..	18/5	18/15	26/10
1937	Colombo (t.i.b.)		28/4	26/10	36/4
	Singapore (Ex. Wharf)	20/11	21/-	21/11	27/2
1936	Colombo (t.i.b.)		16/14	17/8	25/4
	Singapore (Ex. Wharf)	14/12	15/8	15/8	27/2
Average prices quoted.					
Indian (Deshgarh)		Welsh.		S.A.	
1939	16/7/10 (c.i.f.)	10/12/10 (declared to Bombay im-ported).		16/4/2 (declared Bombay imported to).	
1938	15/8/- (")	23/15/1		17/13/8	
1937	18/4/- (")	22/4/4		No imports.	
1936	11/11 (")	19/14/4		14/8/9	
Indian.		Welsh.		Natal.	
1939	20/3/-	..		21/0/4	
1938	21/14/-	..		22/9/4	
1937	19/1/-	..		21/-/-	
1936	14/5/4	..		14/12/6	
1935	14/2/-	23/-/-		14/12/-	

5. In view of the above opinions this does not arise.

6. Figures given above.

7. I entirely agree that grading of coal seams is necessary and I would go a step further by saying that it should be a kind of statutory obligation of the Grading Board to re-grade coal seams at the expiry of every six months.

8. It is absolutely essential for internal market and it must be obligatory.

Qs. 9, 10, 11 & 12. Do not arise.

IV. RAILWAY FACILITIES

13. Railway facilities are very inadequate and the treatment of railways towards the coalfields is very callous. Railways must be made to realise that coal is not only one of the chief commodities which pays them fare but it is also absolutely essential for the very existence of the nation and all co-operation they show to the collieries in the despatch of coal can never be too much.

14. Instead of a 10-hours system of supplying wagons, wagons must be available for loading purposes in the colliery siding for all the 24 hours of the day with the view to see that no wagon is unduly held and 8-hours and 10-hours hauling away of wagon can be introduced. But whatever is done or not done. It is imperative that there must be greater workshop facilities in the coalfields. I feel that instead of penalising the colliery staffs for holding of wagons for more than stipulated period, if statistics are prepared of sick load of wagons, the figures would be simply devastating. It will not be enough to take steps at the despatching end alone. There are intermediary handling junctions and the arrangements which exist in those junctions for handling even the present output of coal are very inadequate. Hence along with improvement in the despatching end proper facilities at junctions are also necessary. For despatches if the line system of despatch is taken recourse to, it will save time and pilferage. Since all the primary railway lines are under Government control, the moral responsibility of the Government in this connection is really very great. To plead inadequacy of the rolling stock would only be an excuse, not an explanation. For this purpose figures given in the Railway Budget and the purchase of surplus stocks from American War Surplus Goods would support my assertion.

It may be necessary to overhaul the traffic system of the railways in such a way that some responsible persons in the cadre of Traffic Inspectors are exclusively appointed to look after (1) Sick Loads, (2) delay at intermediary handling junctions, and (3) total time covered from despatched to the delivering end.

15. So far as the question of rationing of wagons is concerned the practice in vogue in 1940 have ample scope for improvement. Amongst other improvements, one that must be taken in hand immediately is that short supply of wagons to a colliery in a certain day should be made good by supplying additional wagons in the succeeding

date unless of course it has been established by figures for a period of one week that the colliery is not intrinsically in a position to load the number of wagons asked for.

16. Though the Colliery Owners feel the necessity of installing their own weighbridges, very few weighbridges have been installed at the colliery siding. In order to achieve maximum efficiency in coal despatching system colliery owners should be tempted to instal their own weighbridges the accuracy of which should be checked from time to time by certain responsible officers of the C.I. of Mines Office and a certificate should be issued. The Railways can accept the readings of the certified weighbridges and in order to encourage colliery owners to instal the weighbridges some concession in the initial period is necessary.

17. The present system can stand.

18. The grant of siding accommodation should be based on the principle of proper facility to load the daily output in a day into wagons. More points and switches would be necessary to achieve this object and instead of hand shunting some mechanical means for quicker movement of wagons from the siding to the weighbridges must be introduced.

19. There is multitude of complaints so far as the overloading and the underloading are concerned between the colliery staffs and the railway employees. Installation of weighbridges in every colliery, if possible, or for group of collieries to cope with the despatch is a solution of this problem.

20. Mechanical loading devices installed so far are very inadequate. They have not found favour with all collieries, firstly, on account of capital outlay and, secondly, on account of non-availability of open wagons. Some method of mechanical loading-cum-manual labour can be improvised. Though this will save time it cannot save cost of loading. However, if my views in respect of gradation are accepted, mechanical loading from a Central dump would be necessary.

21. If grouping system of freight can be successfully adopted in Jharia coalfield, the objections brought forward against its adoption in Ranigunge coalfield do not seem to be insurmountable. Fair-play demands that there should be grouping system of railway freight in Ranigunge coalfield also. For this purpose Karanpura collieries can be grouped together and bokaro, Rampur can combine to form another group and the freight rates for these groups can be adopted on the procedure followed in Jharia coalfield *mutatis mutandis*.

22. The introduction of seasonal rates of freight for coal transport would be profitable if there is proper response from the consumer side. The very idea of seasonal concession rates presupposes stacking facilities at the consumer's end. Besides this the consumers will have to incur certain additional charges by way of watch and ward and certain loss on account of pilferage; if the concession shown in the rates can be off-setted against these additional charges and still leave some temptation to the consumers they might respond. In

normal times supply and demand equalises themselves both in their flow and the magnitude of flow. In other words, I am afraid that when normal time returns, the consumers might not like to take the trouble of stacking.

However this device which commends itself for consideration to the extent it suits the Railway

coaching traffic, it is proposed only as an incident with the seasonal concessional rates corresponding very nicely with the seasonal supply of labour *vis-a-vis* the seasonal increase in rates.

23. For this purpose the following table would furnish the information :

**Pits' Mouth Value of coal.*

	1937		1938		1939	
	Value in Rs. (£ 1=Rs. 13·3)	Value per ton.	Value in Rs. (£ 1=Rs. 13·4)	Value per ton.	Value in Rs. (£ 1=Rs. 13·4)	Value per ton.
Assam	19,25,409	7 11 11	24,92,719	8 15 1	23,86,669	8 0 6
Baluchistan	1,09,713	■ 4 5	1,43,910	■ 9 3	1,54,472	6 5 4
Bengal	2,10,13,790	3· 3 6	3,10,96,838	4 0 3	2,86,26,713	3 12 4
Bihar	4,09,23,918	2· 15 4	5,37,10,370	3 7 3	4,84,02,895	3 4 4
Central India	11,77,547	3 8 4	13,71,920	4 1 3	13,57,418	4 2 3
Central Provinces	49,80,150	3 4 11	61,18,233	3 11 0	63,66,685	3 10 ■
Eastern States Agency	36,20,601	2 15 10	48,79,469	3 5 4	49,54,517	2 5 1
Hyderabad	32,17,860	2· 15 11	52,75,033	4 5 8	51,40,578	4 3 8
N.W.F.					42	5 4 ■
Orissa	1,50,528	3 2 4	1,44,002	3 3 10	1,77,400	3 0 4
Punjab	8,36,790	5 0 4	10,20,856	5 ■ 9	9,75,401	5 0 4
Rajputana	1,46,133	4 8 2	1,70,485	4 14 7	1,81,128	4 9 11
	7,81,02,439		10,64,23,835		9,87,23,916	
Average value per ton	£ 5,872,364	3 1 11	£ 7,942,077	3 12 1	£ 73,67,456	3 8 10

*From the records of the Geological Survey of India—Volume LXXVI by Mr. E. R. Geo. Page 68.

24. In India mechanisation of collieries has not been very systematic or thorough. The chief detriment in this connection has been the disparity between condition prevailing in different mines. It must be admitted by everyone that working conditions in two mines even if they are situated near each other are dissimilar ; by conditions I mean financial position, labour conditions ; housing problems and other amenities. Wherever mechanical coal cutters have been employed there has been a slight increase in the cost of production. The psychology of Indian Colliery Owners has always been to cut down the cost of production to the lowest figures even if for doing so he has to go behind the established canons of commerce and industry and to sell it at the highest price in the market. To the best of my knowledge I have not read of a colliery which has been worked throughout the whole year by mechanical coal cutters. In many collieries where mechanical coal cutters have been introduced the raisings have been dependent on mechanical-cum-manual labour.

I feel that instead of coal cutters if jack hammers were given a fair play the cost of mechanised coal cutting could be slightly lower. Apart from administrative and technical considerations, the chief defect on the way of mechanisation of mines has been lack of skilled professional labour. In other words, when I consider the technical aspect of mechanisation, I feel no hesitation in recommending that raisings in future must be as far as possible by mechanised means. But when I begin to visualise the practical difficulties I do not find the scheme very feasible. With the new scheme of leasing as opposed to fragmented ownership introduced in the new collieries of future, mechanisation of mines would not only

solve technical raising difficulties but would also go a long way in converting seasonal labour into professional permanent labour.

25. I have some experience in comparing the capital raising of Santhal labour in collieries where track is laid right up to the working faces against their raisings in collieries where it was at a distance of about 200 yds. from the working faces. It was found that the raisings improved by about 25% in the colliery where tracks were laid upto the working faces. I am afraid that recommendations of 1925 would not meet the requirements of 1946. Consistent with the idea of mechanisation of mines it will be necessary to instal conveyers from the working faces right upto the main haulage line. The adoption of this device may not be practicable in existing old collieries but can successfully be adopted in new collieries provided they are working on long wall system.

VI. RAILWAY COAL REQUIREMENTS

Qs. 26 and 27.—I am not interested.

28. It is an established fact that now at least some Locomotives for railways would be manufactured in India and if the manufacturers of new locomotives work in co-operation with the Fuel Research Board and if the Government is pleased to—co-ordinate the research and manufacture new types of locomotives can be evolved for burning even low grade coals. However, the whole question is so complex and so vast that it is not possible to discuss it by means of this memorandum.

Qs. 29 and 30.—I am not interested.

VII. STOWING

31. The Coal Mines Stowing Board has been able to achieve a measured amount of success so far as their scheme to check the spread of fire is concerned. The other object of the Stowing Board was to work thick seams or in other words to increase the ratio of extraction. As there is no monetary reward for a man who has cut down the national waste to a minimum against a colliery proprietor who is out to exploit the coalfield to his best advantage; voluntary sand stowing has not received universal response. In order to make sand stowing universal and voluntary the outlook of the colliery owners and the proprietors is to be revolutionised. In my opinion to achieve this end would be a difficult task. Hence I would recommend some kind of statutory control for enforcing sand stowing.

The other factor which may to some extent be responsible for not making stowing favourite with colliery proprietors can be technically wrong approach to the questions. In other words, thick seams and sections have not so far been successfully worked by means of hydraulic sand stowing. Only in due course experience will teach the Stowing Board that for thick seams pneumatic sand stowing is to be taken recourse to and once this stage is reached all the people engaged in working the thick seams might adopt sand stowing even voluntarily.

32. I am not concerned. But I am in a position to give statistics of 1930-35 prevailing in Germany.

VIII. MISCELLANEOUS

33. Section 84 of the Bengal Tenancy Act is a piece of *ante diluvian* legislation. The difficulties experienced by the proprietors on account of this section can be traced from Government publications. I am opposed to this piece of legislation fundamentally for the reason that it is not in keeping with similar legislation in other civilised countries.

34. Briquetting of lower coal with the help of binder and generally without a binder in the case of tertiary coal has been experimented upon and is being practised at present. The only advantage of this kind of briquetting is that the loss of coal during the course of double and multiple handling is reduced to a minimum and it becomes easier for transportation and handling. Since briquetting of this nature does not in any way alter the fixed carbon percentage of the coal, the briquetted coal would have the same limitation and defects in its use as the raw coal. Briquetting of lower temperature—carbonised coal in a plant where there are facilities for distilling tar products has got greater technical possibilities and commercial advantages. If the Committee be interested in this subject I am prepared to express my opinions in the form of a separate memorandum. In short my ideas are that all dust and low grade coal should be brought into a Central Low Temperature carbonisation plant and the Soft Coke obtained from this plant and to the extent it cannot be sold in the market be briquet-

ted with the help of the pitch that would be available from the tar distillation plant. This solution I am suggesting for bituminous coals. But if at any time efforts are made to replace bituminous soft coke from the household consumption and replace it by means of low grade tertiary coals ordinary briquetting would be helpful.

35. Very little work has been done on the subject of washing of coals. Some individuals tried to experiment on "froth floatation", "float and sink" method of coal washing. If sufficient attention is given to this subject a considerable percentage of ash content of coal can be reduced. But all these improvements would pay to the Iron & Steel Industry and other big consumers. I am of the opinion that for the present the attention of these consumers should be drawn towards this problem and technical advice should be given to them from Central Research Institute. Every-one of the big concern is in a position to establish its own research plan and evolve a most economic scheme of coal washing.

36. I would like the following subject to be included in the sphere of the activities of the Fuel Research Institute :—

- (1) Briquetting of raw tertiary coals.
- (2) Lower temperature carbonisation and briquetting of residual Soft Coke therefrom of low grade bituminous coals.
- (3) Use of pulverised fuel for the locomotives.
- (4) Adaptability of swallow process of carbonisation for Indian Coals.

37. It is a well-known fact that high-octane-benzene or technically called Benzol is prepared by distillation of coal. This Benzol is very essential for high speed aeroplane engines. India's production of petrol even for commercial purposes is very very limited. Hence in my opinion all coal that can be carbonised should be made to part with its benzol content either in the low temperature carbonisation plant or the coking oven. To me it is not a question of giving encouragement to the industry to produce Benzol but it is a national necessity. Theoretically considered the best solution for this problem would be to have a Central Low Temperature Carbonisation Plant owned and run by the Government.

38. Yes, these can be extended as it becomes necessary.

39. I am not aware of any educational facilities entirely run by the state for the children of coal-fields labour and staff, but there are a number of Higher English Schools which receive the grant-in-aid and which exist on the grant-in-aid and the tuition fees. I am aware that the conduct of such schools is most difficult owing to inadequate funds. Many collieries run small primary schools or Middle English Schools which are attended both by the children of labour and staff and in some cases scholarships are given for selected children to proceed to the local H.E. Schools. In the main Technical Schools are poor in equipment

and it is my opinion that even in the Dhanbad School of Mines the standard of education achieved by the students should be higher.

40. If there is no objection in adopting a radical remedy for all these important basic questions, the whole coal industry must be nationalised and the outlook of the Government must be social, because "settled and contented labour" are factors of social structure. In the absence of such a policy whatever little is done by way of palliatives is praiseworthy.

QUESTIONNAIRE II

I.—CONSTITUTIONAL

1. So far as the constitutional position of the Provincial *vis-a-vis* the Central Government is concerned, there is no statutory hindrance on the way of the Central Government in assuming full powers for all minerals even on the basis of 1935 Act. Different provinces have, in some instance, arrogated to themselves and in others reserved such powers as have been enacted upon by the Central Government. The position so far as the coal industry is concerned is very anomalous. Most of our key industries *viz.*, Cotton Mills and Sugar Mills are not in the provinces where coal is found in abundance. In view of this geographical-*cum*-commercial anomaly, even if all the provinces were independent of each other it was imperative to set up some kind of co-ordinating authority. To my mind the basic fact that coal is concentrated in some area where very few industries have sprung up is ground enough for the full control of this industry. Fortunately for us we have the experience of the last five years that most of the powers which are necessary for rational production and equitable distribution have been taken by the Central Government. Whatever one may have to say for or against different kind of controls as exercised during the war period, one has to admit that Government control on coal has been benevolent to the industry and beneficial to the consumers. On this background the future prospective of more demand and less supply is to be juxtaposed and such being my reading of the situation, obviously the logical conclusion is to recommend that there should be control over distribution and some kind of uniform policy of production for all the collieries in India.

This can only be possible if the Central Government works either as the co-ordinating authority or functions on this subject on its own authority. Evidently it will be better for the Central Government to maintain all such powers and, if necessary to amend them in some respect, which have been enacted during the war period.

I am afraid that if there is duality of power there is bound to be some discord as is the case with bicameral constitutions. Hence in my opinion, there is no justification for giving some powers in the hands of the Provincial Government.

2. From what I have said above the case for a separate department under the Central Government has been established. In my opinion,

the department at its present stage is not so voluminous in its scope as to occupy the whole time of a Minister. Hence, instead of having a Member for Mines exclusively, some other subject can usefully be transferred to him. Perhaps it will be better in order to assuage the feelings of the Provincial Government on this matter, if some kind of—Advisory Body based on fractional representation representing the three predominant interests *viz.*, the producer, distributor and the consumer is provided in the enactment. Their power and scope of authority can be defined and maintained.

II. ECONOMICS OF THE COAL INDUSTRY

3. Managing Agents are as much a historic legacy as are the dividends drawn by them so far. Some of the Managing Agents have instead of being a help; have been some hindrance on the path of coal industry's progress. I hope, Managing Agents should be happy if their past commissions are off-setted against their past omissions.

So far as the ownership of collieries by the Consumer Interest is concerned this can be justified for the very existence of vertical concerns. Of course, one might come forward and say against vertical concerns that they have a monopolistic tendency and they invariably give birth to cartels. This is possible and bound to come into existence the trend of World Trade in future is on the narrow nationalistic or sectarian lines as has been the case so far. This emergency can be avoided by a strong Central Government fully equipped with powers. But India has not reached that stage of industrial development where such events can become possible. Hence to my opinion we can not only afford to give full encouragement to the existing vertical concerns but also to create more of such concerns. All such moves would accelerate India's progress towards industrialisation.

4. Has already been answered. The structural organization of the Coal Industry of tomorrow can be so organized that consumer interests have some say even in production matters.

5. Some kind of alliance between the Consumer Interest and units of coal production should be run on the lines of Ford Motor Car Company or Bata Shoe Factory in Czechoslovakia. The alliance that has existed between these Interests have not borne full fruits because of lack of uniform practice in various units of production and lack of organization in diverse consuming interests. What I actually mean by saying this is that if every colliery which is functioning in the field is linked up with its consumer interest as are collieries of Iron and Steel Companies, etc. With their parent concerns, there is great scope for improving standard of life, stabilising prices and payment of fair wages, thus increasing the stock of professional labour year by year.

6. Though really the Indian State Railways own their own collieries, they do not own them in sufficient number to meet all their demands. As other production units were not linked with their

consuming interest, it did not set a standard before these Railway Companies to concentrate their efforts towards stabilisation of prices and maintaining fair living wages. I am afraid that this partial ownership has acted like a whip in the hands of the State Railway authorities. They may not have done it, but they could, when it came to buy from free market threaten prospective seller with the fact that they had their own collieries and could produce all coal they require from their collieries and when it came to improve the lot of the labours required by them they could always threaten their staffs with the fact that instead of producing their own coal and paying higher wages to the labour, the State Railways could easily buy coal from the market at the cheaper price. Whatever may have been the inter-action of these various factors, I would never allow any system which can do without it. Whatever may be the structural organisation of the industry, the grouping of collieries should be organized on such basis that (1) every concern is given enough collieries to meet its reasonable and normal demands, (2) no coal which can be used for a better purpose should be allowed to be used by concerns which can do with inferior coal, even if it means some technical modification in the existing plant or renewal of the whole plant.

OWNERSHIP AND MANAGEMENT

7. I entirely agree with the proposition that the Government should work unilaterally and formulate one uniform policy for all leases. For this purpose, the back-door of India, viz., the Indian State should be compelled to fall in line with this uniform policy.

As a matter of fact this should be made one of the major conditions for future Instrument of Accession.

The first sentence of your question answers the last sentence.

8. Obviously adequacy of certain thing is "commissariat" with the piety of intentions. In other words, if intention of the Government is just to show that they are doing something, any modification they bring about should satisfy them but if it is their intention to remedy all the ills of the coal industry, it is necessary to acquire full mineral rights and then to delegate them to various vertical concerns.

9. Is not very clear. But so far I have been able to make out Government legislation on this subject is the minimum that can be expected though it will not achieve the millenium.

10. Has already been answered in outline above.

FINANCE

11. A considerable number of privately owned concerns are surely under-capitalised. They have not been able to obtain finances not because they were small concerns but because of their way of work and the mentality behind it.

12. Over-capitalisation might have been an occurrence of the past but I have not heard of this phenomenon taking place in coal industry during the recent years.

PRODUCTION

13. The capita raisings in India are really very low but this is due to a multiplicity of factors, climatic conditions can be banded as one of the chief causes, callousness on the part of the colliery owners is another factor and disparity of the tariff of daily wages in between other industrial labour and colliery labour has something to do with it. I am afraid, I should not be paying any compliment to the colliery owners when I accept their complaint that colliery labour in India is still partly agriculturist. This fact becomes more aggravating when one remembers that the standard of wages in Agriculture even in the form of agricultural produce is very low except during the period of war that has just ended. Besides this, the percentage of absenteeism with colliery labour is abnormally high. In the following table effort has been made to furnish the required information. I find that the literature in this connection is not in my list and I have sent for it from Delhi.

14. Once there is an agreement on the diagnosis of the malaise that has so far been responsible for low raisings, it is very easy to recommend remedies for it and their cure. The very nature of the diagnosis mentioned above makes it necessary that in order to improve the capita-raisings, action is called for both in the sphere of administrative as well as management side. In order to tackle the whole problem, the tariff of wages is to be so adjusted that every man is assured of a minimum living wage. The present Indian Workmen's Compensation Act has not gone into the question of colliery wages very thoroughly. Steps must be taken to enact insurance scheme to cover unemployment, old age, disease and serious injury compensations. I am afraid that the question of insurance of colliery labour is vitally linked up with the question of similar insurance for other industrial labour on an All India basis. In the case of colliery labour due provision must be made for the peculiar hardships and conditions of the coal mining industry.

15. *Prima facie* the raising contractor is a middleman between the colliery proprietor or the managing agent and the colliery labour. If his functions are to be described, he has to grab his share out of the amount that are being spent on coal raising. Their existence in the coal-field might have contributed to a considerable extent to the whole output for a year but so far as the question of capita raising is concerned, the raising contractor has, if at all, contributed very little. In the very nature of things, to improve the capita raisings additional expenditure for providing amenities and reasonable insurance is necessary. I have yet to come across a raising contractor who is—philanthropist enough to *squander his hard earned profits to achieve these ideas*.

If the existence of coal raising contractor has resulted in unsystematic mining methods it is not due to any intrinsic defects in the system of coal raising contracts but must be due to defective management and some amount of overboard practices. But there is another side of the medal: the raising contractor has not only catered

for the colliery labour, he had also worked as liaison between the management and the labour. If the raising contractor is to be discarded, on account of factors which are controllable, there might be a sudden set-back. That the functions of the raising contractor can be done away with, there will be no dispute about it. But to reach the new stage of purely departmental labour and raisings, provisions must be made for the transitional period.

I have not been able to answer the question:

"If the raising contractor can procure the labour, why not the Colliery"?

16. As I have already stated in my previous memorandum in reply to questionnaire No. 1, I think that export of coal from India should be stopped, so long as equilibrium in between total production and internal demand is not established. Side by side with this measure steps must be taken to improve the capita raisings and secondly to tempt more labour to come to the collieries. In my opinion there can be an increase of about 10% on the present raisings if methods are employed to cut down absenteeism to minimum. If the coal industry in India is to keep pace with the changing panorama of world events, labour welfare centres will have to be organized on realistic lines. Some kind of organization similar to "Kraft durch Freude" or "Dopolavoro" in pre-war Italy is necessary.

Some of the army personnel which is undergoing predemobilisation training for change-over from military to civil life, should be tempted to adopt coal raising as their profession. For this purpose, different labour force and the personnel, "Miners and Sappers" can very usefully be tapped. This is possible if there is at least similarity in basic wages and guarantee of a minimum daily wage. As a matter of fact, coal raising work is very arduous and the life of coal cutter is harder, more risky and more difficult. If additional labour is to be tempted to come to the collieries due provision for all these factors must be made. Theoretically considered, mechanisation of mines may be one solution but lack of skilled labour, paucity of funds, non-availability of tools and plants and replacements are obstacles on the way of achieving any measured amount of success.

A certain percentage of this estimated deficit can be cut down if coal supply to power houses, which can very easily obtain their power from the grid system, is reduced. Similarly some other consumers also can switch over from thermal to hydal power production. As a result of the war, every power station wants to replace its existing plant. They can be made to go in for water turbines whenever such is possible instead of steam turbines.

In short my recommendations, in this connection, are that mechanisation should go as far as circumstances permit and immediately steps should be taken for improving the lot of the colliery labour.

DISTRIBUTION AND MARKETING

17. Marketing Boards have to be brought into existence when the sale of certain products is to

be popularised. Consistent with the assertion of high demands and less raisings establishment of Marketing Board is not called for. If Central Tea Marketing Board and Coffee Cess Committee can work successfully why not the Coal Marketing Board. In other words, Coal Marketing Board is feasible but not desirable.

I feel that the introduction of the system of price fixation under Government control is absolutely essential. So far as the fixation of price or different Sales Quotas is concerned, I would recommend that the final power should be with the Government but in preparing the price quota, the industry must be consulted.

In order to answer the question of zonal or regional grouping, a complexity of questions has to be solved. Whenever the Marketing Board is brought into existence and in appreciation of different factors involved, I would recommend Zonal grouping.

As I have stated above I think it is pre-mature to think of the marketing Board at present. Hence the question of different functions of various complementary and supplementary factors is hypothetical.

18. This question has already been answered by me in the affirmative in the reply to your questionnaire No. 1. In my opinion the experience of the war-time practices should be utilised to stop all loopholes and harmonise emergency regulations with the peace-time frame of mind of all, viz., the producer, the owners and consumer. I am afraid, any slackening of these regulations would result in chaos.

I quite agree that Indian coals have to be thoroughly analysed both technically and commercially. But I would consider it a dereliction of duty if pending the compilation of such analysis emergency regulations are slackened or suspended.

19. In view of what I have stated above, the question does not arise.

20. It must be the ultimate responsibility of the Central Government. But because of this the Managing Agents and the Colliery Proprietors should not be let go scot-free.

21. The experiences of Government control during the war time and the Coal Grading Board would be quite competent to answer this question.

TRANSPORT

22. From the views expressed by me in reply to your previous questionnaire, it is clear that I am in favour of fixation of rates on azonal basis. In determining the true economic range various factors must be taken into consideration. They are:

- (1) Callorific value of coal.
- (2) Sizes under which it is being sold.
- (3) Ash content.
- (4) The underline principle "what a commodity can bear" should be observed not only in the case of coal which

is a raw material but also in the case of final products for the manufacture of which this coal is working as a raw material.

If this scheme is acceptable to your Committee, I am prepared to work out a details.

23. Though superficially considered, the suggestion of pooling all railway freights seems to be a very simple solution, there are various objections to its adoption.

- (1) The margin of profit in every industry is not uniform.
- (2) The demands of every industry are divergent.
- (3) At various centres the prices of coal as raw material have to compete with the prices of other fuels which it would be beyond the scope of your Committee to harmonise. If same principle could be applied in the case of all fuels or energy producing resources, this suggestion could be worth considering.

24. I am afraid, the idea underlining this question has already been objected to in my previous answer. I have also given a skeleton outline of a revised freight rate policy. If the policy outlined by me is acceptable, details can be worked out.

25. To me it seems that it will be unfair to be guided by one specific principle in determining freight rates. It will be fairer to give fractional representation to the three principle underlined in this question and also to the margin of profit in the finished product for determining the freight. In other words, we can evolve some formulæ on the lines of Car Tax as it is practised in England.

26. To differ from this suggestion would be to deviate from the general universal practice in this connection. The present practice, in my opinion, is justifiable and logical.

27. I have nothing to say.

28. To my mind solution of wagon problem is as important a matter as conservation of coal. The pooling of wagons together under the operation of a Central Body is indeed one of the factors that would contribute towards efficient distribution but for doing so sight should not be lost of the fact that workshop and running yards facilities are equally important.

PRICE AND PROFITS

29. The most ardent advocates of laissez-faire pre-suppose counter-balancing of demands by supplies. Since it has been admitted by general consent that it is not going to be the case, the case for free trade is not established. It may perhaps be necessary as a last resort to adopt some kind of punitive measures to stop the wastage and wrong use of coal by different industries. One drastic way of doing this would be to raise the price of metallurgical coal to excessive limits and granting rebates ton-wise on the finished products of the industry for

which coal of certain quality has been allocated but give no rebates to wrong consumers. The rebate system can be worked out on a sliding scale system so as to cut down the wastage percentage and encourage the consumer in achieving better thermal efficiency. If this suggestion is acceptable, Government Marketing Machinery for nominally acquiring all coal and selling it to different parties would be necessary and the colliery proprietors would only get the fixed basic price and the balance of the enhanced price would go to a suspense account.

30. I am in favour of all-round control. In my opinion, there should not only be control over price of coal supplied to these big consumers but there should also be rigid control over the quality of coal made available to them. To my mind half-measures are no measures and besides, every product has to compete with another industrial product in day-to-day life of ordinary man.

31. I am entirely in favour of Government intervention but it would take more time to devise the scheme for such control.

33. On a broad principle 10% of the arrived at cost of production should be allowed as profit. But this allowance of 10% should be adjusted on a sliding scale basis so as to encourage specially Indian Colliery Owners to establish better conditions in their collieries. So far as the last sentence of your question is concerned, I am not one of those who break one's confidence in order to gain other's favour.

34. As I visualise the functions of the marketing Board they will have not only to decide the prices at the despatching end but also to fix them at the consumer's end as well. In other words, the machinery that is being employed by the Department of Civil Supplies at present can in part be taken over by the Marketing Board.

TAXATION

35. When I remember the fact that most of the colliery owners came to coalfield as carpet-baggers and now take pride in being called millionaires, I find it hard to swallow the complaints of excessive taxes and multiple cesses. However, I am prepared to admit that the whole system of taxation in India is not uniform and cases can be quoted where industry is not so heavily taxed as is the case with the coal trade. I do not for a second believe that the taxation and cesses have reached the suffocation point and some relief is necessary. Day-to-day market value of the shares of the different collieries will prove it.

NATIONAL AND INTERNATIONAL COMMERCIAL POLICIES

36. For sometime at least I am against export of coal from India but at the same time I am in favour of imposing prohibitive (protective) import duty on outside coal.

37. If I have no fear of losing cast with the Govt. I can assert that India never translated

international labour convention honestly into action so far as colliery labour is concerned. Whatever little was done and afterwards undone has contributed towards the welfare of the industry on a long range policy. I have never been able to understand why should it be necessary for females to go underground in India while in other countries they could do without it. I am conscious of the fact that that statistics would be produced to prove that that adoption of international conventions has been deteriorating to the industry but I still assert that before its adoption the industry was not working on a sound moral basis.

CONSERVATION OF HIGH GRADE METALLURGICAL COAL

38. All coal that can be used for smelting, coking and purposes of chemical industries should be defined as metallurgical coal. According to the report of the Geological Survey of India, Vol. No. , page No. the known deposits amounts to tons. I agree with this estimate.

43. In my opinion the requirements of metallurgical coal can be reduced by about 10% by blending and 5% by washing. From what has been made public very little knowledge is available of any progress and investigation that has been carried out in this connection, except occasional papers by some individuals, are not of great technical or commercial value.

44. In my opinion there is less wastage in the consumption of coal in Iron & Steel Industries but there is still ample margin for improvement and progress. I am of opinion that if some kind of punitive action for wastage is taken in hand, Iron & Steel industry in India would be whipped to produce better utilisation and less wastage. I had occasion to go through the statistics of "Lurgi Gesellschaft fur warme Technik" and I found that the place of Indian Iron & Steel industries was not very high.

45 and 46. These questions have already been answered by me in fragments. In my imagination the necessity for imposing restrictions is greater because of the collapse of Japan as Iron & Steel producer.

47. Restriction can be successfully enforced by:

- (1) Enhancing the basic price of metallurgical coal by 100%.
- (2) Granting rebate on tonnage system on the total output.
- (3) First nationalising all metallurgical coal as a matter of principle and then leasing it out exclusively to appropriate industries.
- (4) Expansion by these consumers of their collieries to be done only after Government consent and to the extent this consent has been given.

48. I do not think it will raise very serious difficulties, obviously because of the fact that the total coal required to be raised would still be greater than coal raised at present when these collieries can work. This automatically solves the labour problem. The question of holdings and leases, I hope that the future Government of India would be competent and willing enough to pay reasonable compensation. Fortunately for us most of the plant available in these collieries have already been written off and whatever serviceable and new plants and machineries are available can be put at the disposal of other collieries which will have to expand in order to depict a true financial picture. Inspection of every colliery which is likely to be shut down is necessary.

49. Has already been answered in fragments.

CONSERVATION OF HIGH GRADE STEAM COAL

50.

51. Not only do I consider that there has been a criminal waste in the utilisation of high grade steam coal but I can perhaps prove it also to some extent. Broadly speaking, in my opinion, this coal should be used exclusively for purpose of power production where no other alternative method is workable, e.g. in the case of power houses this can easily be connected with grid system or to concerns which can produce electricity at competitive rates by using crude oil or diesel oil, supply of steam coal should be stopped. In the case of Indian Railways unless it is finally proved and established by the Fuel Research Board that no other coal can satisfactorily be utilised supply of high grade steam coal should be regularised. But to elucidate this point, I would draw the attention of your Committee to the possibility of using high grade tertiary coals of the Punjab for N.W.R. and low grade coals of Panch Valley and Hyderabad State for M. & S. M. Railways and so on.

52. Has already been answered in principle above.

53. The degree of urgency in the case of metallurgical coal is different from what it is in the case of steam coal; whereas in the case of metallurgical coal I hold that State Ownership and regulations on supply is imperative, some form of regulations in the sphere of supply of steam coal would suffice to alleviate the present position.

CONSERVATION GENERALLY.

54. I am afraid that even if statistics have been compiled by Indian Collieries in this connection, they have not been made public. Hence whatever opinion I am expressing in this connection is based on surmise. To my mind even if in the case of best worked modern Indian colliery, percentage of extraction would not exceed 70. The collieries which are extracting less than this percentage have made efforts to reach to this

target. In order to be fair to the colliery it must be admitted that their tendency and efforts during the recent years have always been towards increasing extraction. They have been actuated in such efforts, firstly, by the panic spread about dwindling resources of coal in India, secondly, by war boom in prices and, thirdly, on account of moral influence of the Sand Stowing Board.

55. If for reasons best known to the power that may be, it is decided to base future working of the Indian mines on pillar and stall system, the present regulations are competent enough but if other methods of mining are to be considered on their merits with an open mind with the idea of eventual adoption, the present regulations will have to be modified. For purposes of greater extraction pneumatic sand stowing will have to be adopted and the nation will be grateful to your Committee if it is done now.

56. Rotational working of mines is a condition connected with pillar and stall system of mining. It has so far been adopted very haphazardly. In my opinion for purposes of centralization of production and raisings other methods, *Viz.*, sectional working and long wall system should be given a fair chance.

57. Every colliery which has adopted stowing has primarily been actuated in adopting this measure by consideration of higher extraction than by consideration of safety. Consistent with greater extraction safety measures can run parallel if the recommendations of your Committee are in favour of pneumatic Sand Stowing. It would automatically contribute towards conservation. I am in a position to prove even to the most ardent supporters of hydrolic sand stowing that this method is no solution for the problems which Sand Stowing Board is expected to face. Stowing should not be connected with different kind of coal but should be related firstly with the working of thick seams, secondly general mining conditions in the colliery and thirdly for safety purposes.

A case for patronising Sand Stowing exists if Stowing is not made universal. The extent and the system of patronage would entirely depend on the recommendations made by your Committee. However details can be worked out even to suit your recommendations.

58. I am afraid that the Government has to disabuse its mind regarding sand being the most ideal stowing material. I am told that they are having a Research Centre for carrying out investigation in connection with Sand Stowing. Not only the nature of different stowing materials but utility of mixture of different materials based on resources available near at hand and the evolution of a satisfactory blend or a variety of blends should be one of the tasks of this Investigating Officer. If such investigation is taken in hand it will be found that in the case of some collieries we can completely do away with the sand and in the case of others sand would be required, only for preparing a suitable blend.

If there is no objection for making use of the results of the investigation carried out in the foreign countries in this connection, I am in a

position to furnish to your Committee or any other body interested with all the available data.

Sand rights will have to be taken by the Government.

59. Measures should be made to share in the cost of stowing to the extent they owe allegiance to national interest. Fair basis for determining their share would be to fix it on a sliding scale system proportional to the improvement in their extraction ratio prior to adopting sand stowing.

60. Does not concern me.

61. Thermal efficiency of coal improves if they are utilised in pulverised or in colloidal form. So far as the question of pulverised fuel is concerned it was pursued in India by G.I.P. Railway authorities, *vide*, "Pulvarised Fuel" and the "Cunard Line" carried out experiments on colloidal fuel. The G.I.P. Railway found the use of pulverised fuel impracticable because of non-availability of suitable coilers and the cunard line adopted colloidal fuel even for running their luxury steamers.

If progress has been made in devising suitable locomotives for using pulverised fuel, as early as in 1935 "Schwarz Kopt" in Germany had started manufacturing locomotives for using pulverised coal and M/s. Stein Muller had been manufacturing suitable boilers fired with pulverised fuel for the last 20 years.

In my opinion, whatever researches had been undertaken in India in this connection have in the light of the present progress of the Science become ante-dated. Hence it is essential that fresh steps to determine the economic and technical utility of pulverised coal should be undertaken and as previously recommended it should be one of the function of the Fuel Research Board.

62. So far as this question is concerned my views are radical and may be condemned as utopian. Even with this knowledge I make bold to recommend that at least for group of collieries there should be a Central Low Temperature Carbonisation Plant utilising power produced by uses of waste coke. If this point be further pursued it may be found advantageous to couple it with the Sindhri project and instal a heavy central power station or to establish a chain of smaller power station inter-connected with a grid.

In determining this aspect due consideration must be given to the Damodar Valley development project wherefrom it may be possible to obtain cheaper electricity not only for collieries but also for rail track in Calcutta. So far as electrification of the railway is concerned, I am afraid that the traffic to be handled by Railways has not reached such magnitude where electrification would be economical and justified.

63. The present practice of producing Soft Coke is unnational wasteful and a technical crime. All these adjectives can be eliminated by installing a Central Low Temperature Carbonisation Plant.

64. Coal-Tar Distillation industry in India necessary as it is, is not so urgent as production

of high-octane benzol. For this purpose, I will recommend Swallow Process of Distillation. Short of that Low Temperature Carbonisation would solve the problem to a considerable extent.

MINING LEASES AND FRAGMENTATION

65 and 66.—Not acquainted with particulars.

67. The terms and leases of prospecting licences will have to be re-drafted in accordance with the basic policy of the Central Government. However, there is always the necessity of a Central Co-ordinating Authority.

68. In the above paragraph when I mentioned that there should be a Central Co-ordinating Authority, I had the question of maximum royalty in mind. The very word 'salami' is obnoxious. If its levy can be justified on ground of past practices it should be incorporated with the royalty.

69. Technically speaking, uneconomic colliery is one where overhead charges are top-heavy and the output is so low that any possibility of improvement in the working conditions is only possible by installing additional plants and machineries and which the colliery is not in a position to bear. In plain language any colliery, which has primitive method of working and labour conditions are very galling, is *ipso facto* an uneconomic holding. I am not in a position to furnish figures about the extent of such holdings. But so far as I know in majority of the cases in such collieries the owners are direct lease holders.

In addition to family disputes the book in coal prices and some loopholes in the existing leases have combinedly or separately been responsible for fragmentation of colliery holdings.

70. National interest never encourages uneconomic enterprise. Apart from this sweeping remark fragmentation of holdings has been a drag on the way of amelioration of labour conditions; it has given birth to corruption and fraudulent deal. It has never looked on coal trade with an eye to national interest. The owners of small uneconomic collieries have always followed the policy of making hay while the sun shines.

71. The logical conclusion of what I have pointed out above is that the present uneconomic holdings should be amalgamated together and so far as future development is concerned it should be a statutory prohibition to work uneconomic holdings. In my opinion mixture of the remedy mentioned by your Committee in sub-clause (i) with sub-clause (iv) Q. No. 71 is what is desired to be done.

I get the moral support for this suggestion only if the right of a lease holder or a colliery owner is properly juxtaposed on the background of democratic practice in this connection in other country. Fundamentally considered, the lease holder has only got the right to work the mineral but he is not the owner of that mineral. Obviously, apart from this fundamental principle ultimate ownership vests in the State or the Central Authority. If that is so, the Central Authority has every power to enact laws for the economic working of the minerals and well-being of the nation.

OPENING OF NEW COALFIELDS

72. In this connection, I have only heard hush-hush rumours. I only hope and pray that there are still untapped reserves. I am of the opinion that for this purpose Karanpura would be a suitable field for operations. So far as the question of locating such reserves is concerned, we may either expand the present Geological Survey of India to enable it to take this question in hand or interest the Provincial Governments to do their own prospecting on behalf of the Central Government. In other words, the Central Government must be the co-ordinating authority.

ADMINISTRATIVE MEASURES

73. It presupposes the maintenance of *status quo* administrative and inspectorate arrangement even for India for tomorrow. But I think that the present structure requires modification in many respects. Hence in my opinion this question should be linked up with the future structure of administration and inspection.

74. It is high time that there should be a separate department consisting of all the present functions, and the various Committees and Boards operating at present should be the heads of offices for different branches. It can safely be amalgamated with the Geological Survey of India, mineral development of the present mining department in order to create at least part portfolio for a Junior Member of the future Executive Council or Cabinet.

75. Different bodies looking after the health measures and utility can be grouped together under the Heading of Health and Hygiene (Mines) to constitute a separate office. The Head of this office can be made subordinate to the Body recommended in the previous paragraph.

ORAL EVIDENCE

Question.—You have stated that you have no objection to sub-division of colliery holdings, provided such divisions are based on a co-operative association. Will you elaborate on that point?

Answer.—The present fragmentation is uneconomical, both commercially as well as from the point of view of mechanisation. So, my idea has been to make it obligatory for different groups, for small concerns to group together, unless they reach at least the minimum economic level.

Question.—Do you consider that the mentality of the average mine owners to-day is such that they can voluntarily associate themselves in a co-operative effort of the kind you suggest?

Answer.—Unless there is some force they will not but if they know eventually they must, they will.

Question.—In respect of granting sidings to the collieries, do you consider that this should be or the primary factor of the output of coal upto a minimum tonnage?

Answer.—Consider the basic principles on which a siding is granted. The Railway has to make some provisions, like rails, fish plates etc. Rail

ways would not grant a siding if it is not economical to them. However, that is the commercial side of the question. But so far as the interest of a colliery are concerned, unless they have got a minimum raising they cannot well afford to incur the expenditure on providing the siding. I think a group of collieries producing 2,500 to 3,000 tons a month should be provided with a siding.

Question.—What advantage do you see in the use of jack hammers as against mechanical coal cutters?

Answer.—Capital cost is low and cost of production with the aid of jack hammers is low. The man who works it will also get fresh air, because it is worked by means of compressed air.

Question.—We are told that compressed air is much more expensive than electrical energy by which a coal cutter works.

Answer.—That is so, but I can produce figures to show that the cost per ton of coal raised with the aid of jack hammers is lower than the cost of ton of coal raised by coal cutters. They were started as long ago as 1932 in Germany because of the cheaper cost.

Question.—Coal cutting machines were discarded in favour of jack hammers in Germany?

Answer.—Yes. They were working also in Czechoslovakia, Holland — using jack hammers.

Question.—Do you think that the conditions of the Indian mines are suitable for the jack hammers?

Answer.—Yes and every colliery that can use jack hammers may not be in a position to use coal cutters.

Question.—Coming to the question of sand stowing you have suggested that for thick seams pneumatic stowing is ideal, as against hydraulic stowing.

Answer.—The density of the material with which we stow in the case of hydraulic sand stowing can never exceed 50 % of the original coal and in case of pneumatic stowing it will be a minimum of 75%. There is another thing. In a country like India, the moisture content of the stowing material is very great. You can never control it. In the case of pneumatic sand stowing you can always control moisture. It is never allowed to exceed 10%.

Question.—Is the pneumatic stowing process much costlier?

Answer.—No. If you take the cost per ton of raisings it works out in Indian money to about Re. 1/- in hydraulic sand stowing and Rs. 1/2/0 in pneumatic stowing.

Question.—If pneumatic stowing is not only cheaper but also more effective than hydraulic sand stowing, why have no efforts been made in India to utilise that particular method?

Answer.—About that I don't know. You must ask the Stowing Board.

Question.—What about voluntary stowing? It is done by hard-headed business men.

Answer.—The reason is that we took all our inspiration from England; it was not considered on its economic merits.

Question.—In regard to pneumatic sand stowing, as far as the supply of sand to pit head is concerned there is no special arrangements necessary?

Answer.—No. You don't take sand alone for pneumatic stowing. Anything that is lying near the collieries will do, provided it is not more than 2" in size. You use everything that is lying on the pithead and atleast 25% sand.

Question.—Could you explain the 'Swallow Process' of carbonisation to which you refer.

Answer.—It is a war-time patent of the War Department in America. I have not seen the process, but have read literature on it. These things are done at a time in that process: hydrogenation, carbonisation and fixed carbon. From the technical literature I have read, I think the process can be applied in India.

Question.—Why do you think the output per man per day in India is less today than it was before the war?

Answer.—For the harvesting which is only for 3 months in the year the people get fabulous remuneration and the colliery owner is never willing to pay whatever money the labourer gets in these three months. So it is a question of economics.

Question.—Do you consider that something is also responsible other than low wages?

Answer.—Yes, to start with it is because the Indian labourer's outlook on life is not industrial: So when you are prescribing minimum wages you will have to take some other positive steps in addition. India is changing terribly. The whole mental outlook, the standard of living, the life of the Indian is undergoing change.

Question.—In many places in your memorandum you have emphasised what you call the moral basis of working of coal mines. Could you tell us in brief what is meant by that expression?

Answer.—It means at least some means of fair distribution of profits. I can never reconcile myself to a situation where the capitalist reigns. Many of the Indian mine owners who came into the field have made big profits, but the position of labour remains the same.

Question.—You have mentioned that the place which the Indian iron and steel industry occupies is not very high in the ranks of the steel works of the world in respect of better utilisation of coal. Could you explain?

Answer. I worked as an apprentice with the United Steel Works of Germany and they have compiled figures and it shows — so far as Tatas are concerned, their position is well known—that it is not complimentary to the steel works of India. This might be propaganda, I do not know.

Question.—Did they take into account the relatively poor quality of coking coal in this country?

Answer.—I do not know.

Question.—You have drawn the attention of the Committee to the possible use of tertiary coal of the Punjab by the N.W. Rly. I presume you know they are of high sulphur content and so unsuitable as such for steam raising in locomotives.

Answer.—Ask any technical man. "What is the objection to using sulphur coal?" The answer is it eats the fire bars. The war has produced many alloys. It must be possible to produce a suitable alloy for this purpose.

Question.—From a technical angle your opinion is there can be up to 5 per cent sulphur and it is possible to design a boiler for the use of coal containing sulphur as high as 5 per cent.

Answer.—Yes.

Question.—In respect of rotation working of mines, you suggest sectional working and the longwall system should be given a fair chance.

Answer.—Yes.

Question.—Surely it is open to the colliery owner to adopt any system which suits working there.

Answer.—That pre-supposes that they know all the technicalities. But they don't.

Question.—Is it your suggestion that the State should step in and go as far as to compel the use of certain methods of mining?

Answer.—The State has certain mines of its own and if your Committee is convinced that the longwall system is better in the national interest you can support it and set an example in your own collieries. Then others will imitate it.

Question.—You have very correctly emphasised the waste in the production of soft coke, waste in the matter of gases escaping in the air. You are suggesting the establishment of a Central Low Temperature Carbonization Plant. Could you tell us from your experience whether any such plants have been installed.

Answer.—I know of at least 50 that were installed by one single German concern. In Australia they have one big plant which was manufactured there. No material was imported from any where. In Canada they have got plants; and in United States too. In Australia they have got the biggest unit.

Question.—The only information which has been placed before us is in respect of the plants in England and America where Low Temperature carbonisation plants have been abandoned because of very heavy costs.

Answer.—Yes, so far as the conditions in England and America are concerned I am told the cost of production will very high.

97. WRITTEN EVIDENCE OF DR. CHARLES FORBES, PRINCIPAL, INDIAN SCHOOL OF MINES, DHANBAD :

IMPORTANT NOTE: THESE ARE PERSONAL VIEWS AND MUST NOT BE INTERPRETED AS IMPLYING APPROVAL OR DISAPPROVAL OF THE GOVERNMENT OF INDIA (DEPT. OF LABOUR) OR OF THE COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH OR OF ANY OF ITS OFFICERS OR COMMITTEES.

QUESTIONNAIRE I

General

The problems facing India in the matter of the efficient development and use of her coal resources are so numerous and complicated—their solution is a matter involving technical knowledge and experience of so high an order—that the time has come, in my opinion, for the establishment of a ministry (presumably, in India, a Department) of Fuel and Power, following what has, I think, proved to a successful precedent in the United Kingdom.

There is, I think, a case for the proposed Fuel Research Institute being either wholly or jointly under the administration of such a department. Safety in Mines Research touches so closely the sphere of activities of a Fuel Research department, or at any rate of a coal research department, that there might be great advantages in the two activities being under the one general administration. In saying this I must not be taken to suggest any adverse criticism of the present fuel research regime.

I have seen no very tangible sign of progress in the matter of Safety in Mines Research being taken up systematically. It would be interesting to know if any steps have been taken with the help of the Stowing Board—or any other—funds.

I would press for active co-operation in both the above research spheres with the college under my administration, as is common practice in the U. K. and the U.S.A.

II

Grading and Export.

7. Grading of a coal in a seam is completely out-moded and should not be reconsidered. The procedure followed is not, as far as I know, followed elsewhere in the world, and is not founded on any scientific or technically sound principles. Like other commodities, coal should be (as it can be) sold at prices based on the grade, size, quality etc. (judge by many standards) of the coal as actually delivered to the consumer or at least the purchaser. Examination of the variations of quality of coal in any seam in India, especially those of the Jharia and Raniganj coalfields, will demonstrate the almost ludicrous futility of "grading" of coal in the seam as a general policy. I do not here refer to the undesirable effects that the policy has had in the past in creating a tendency in some instances to extract only profitable sections, leaving temporary unprofitable sections that under different economic conditions may prove profitable. It should be realised also that the adoption of cleaning on a large scale will

ultimately make grading in the seam a completely antiquated practice. (For examples of variations in quality see note on washability.)

In this connection reference may also be made to my note on Prices and Profits.

I would here enter the strongest possible protest against the persistence with which the Coal Grading Board analysis adhere to completely outmoded methods of analysis of coal and especially the meaningless and confusing method of stating the results of analyses which does not give a picture of the coal

- (a) as mined
- (b) as received by the consumer
- (c) as it would be if air-dried
- (d) as it would be if oven-dried
- or (e) in any conceivable form.

It is impossible, without irritating and time-consuming calculations, to rebuild, from the figures as tabulated, a picture of the coal in any form for the purpose of working out its value to the consumer, and it is also impossible to correlate the results (as tabulated) with those of fuel technologists throughout the world. It is doubly unfortunate that some quite important laboratories in India have adopted the methods.

I speak in all seriousness when I say that I cannot impress upon the Coalfields Committee too strongly the importance of rooting out this absurdity from the coal industry of India.

Certain sections of the coal mining industry have a somewhat ill-defined fear of a breakdown in established conventions that would follow the abandonment of the present system (of recording results). That fear can be, and must be, dispelled. The coal industry does not need to be bolstered upon what is in actual fact a falsehood. If my strictures in this matter are not welcome I suggest that they be submitted, along with a tabulated statement of the facts, to any established authority (e.g. the Director of Fuel Research of Great Britain, the Director of the Coal Utilisation Research Council, the Bureau of Mines—U.S.A., or in fact any fuel authority in the world, even Japan!).

VI

Railway Coal Requirements

28. A large proportion of coal users in this country, including some railway coal users, are not fuel technologists, the majority cannot be expected to know (and do not in actual fact know) much about the classification of coal or even about the broad classes of coal that exist in India. I suggest that the replies to this question should be submitted to one or two fuel technologists (I suggest the Assistant Director of Fuel Research and or myself) for comment before they are considered by the Committee as a whole.

I would point out that for raising steam one must take into account characteristics other than mere ash content. There are highly technical matters relating to the "rank" of a coal that

must be taken into consideration when judging suitability for use in any particular furnace. I trust I shall not be misunderstood if I express the opinion that too often an officer in railway service is deputed for duty in connection with fuel problems merely because he may happen to be available rather than because he is an expert fuel technologist. There have been, and still are, exceptions, but I think the general statement stands.

Miscellaneous

34. *Briquetting*.—Some years ago, at my suggestion, the Agent, East Indian Railway, sent an officer to the U. K. and Europe to study this problem and an interesting report was prepared. I have been allowed to retain the report and some of the specimens of briquettes that were made from Indian coals, some without a binder (see below). I shall produce these before the Committee if required.

Coal has been successfully briquetted (or rather made into "ovoids") in Assam and, more recently I understand, in Baluchistan. The main difficulty that has militated against briquetting of the Jharia and similar coal mines in India has been the relatively high cost of a binder, the use of even 5% of which has, in the past nearly doubled the probable cost of briquettes made from our Jharia and Raniganj field coals. But the relatively higher cost of coal (at the present day) and the possibility of dispensing with a binder (using high pressure only) makes it necessary that we should now seriously consider the desirability of reopening the matter. Apart from purely economic considerations, I presume the Committee will then, it right to consider the possibility of employing methods, in certain circumstances, that judged by the orthodox standards would not be adopted but judged from the point of view of the national interest may have to be adopted. The matter is of special importance in view of the fact that the finer screen sizes of the majority of Indian coals are of better quality than the run-of-mine coal from the same sources. (This is referred to below, in the section dealing with washing of coal.) There is a German process for briquetting lignites. I regret that I have not yet obtained sufficiently reliable information regarding it, but the Committee (or any new department set up) should obtain information without delay. Lignites and other Tertiary coal deposits are specially suited for such treatment. This is of importance, even to railway users, with reference to the utilisation of Punjab and other North Indian coals. (The sulphur problem is a serious one.)

35. *Washing of Coal*.—I submit my comments on this subject separately.

36. *Fuel Research Institute*.—I have referred to this briefly on page 1.

I would make a very strong plea here for complete severance of the proposed Fuel Research (and Safety in Mines Research) Institute from Finance Department Control, after the grant of funds. That is to say, large block grants should be made and the funds administered by a strong

Fuel Research Board. Scientific Departments cannot be efficiently (or, therefore, successfully) worked by stereotypes government rules of procedure, nor can the rate of expenditure ever be accurately forecast. Nor can the workers (employees or whatever one cares to call them) all be classified into clearly defined categories. The present system where by the Finance Department in India has, as one of its functions, the matter of deciding whether this or that scientific worker shall be paid such and such a rate of pay, renders efficient planning of the development of scientific departments or institutions almost futile. Some compromise must be effected if we are to make progress in this matter.

From almost 20 year's experience of the system in India I think the main difficulty is what I might call the "fear" of establishing precedents along with what is believed to be the necessity to follow established precedents. In matters such as this every major problem can be and in fact must be judged on its individual merits, according to the circumstances of the case.

Another important principle must, I think, be established if we are to make progress in industrial research in India under government auspices. That is that if a committee of experts gives its valuable time to drawing up plans for a scheme and submits its estimates, these estimates must be accepted, or at least if the Finance Department or other deciding authority remits them back for reconsideration, then after that reconsideration the final estimates must be accepted without any of the almost automatic "cuts" that departments are accustomed to in this country. The alternative must, I think, be a simple statement that the funds cannot be found. The scheme should, thereupon, be abandoned. Half-hearted attempts to "make do" have ruined too many excellent schemes in this country. India deserves something better.

Apart from this matter of financial policy, I would press for an immediate and generous grant of funds for starting the physical and chemical of India's coal resources, for which the Fuel Research Committee has been making such strong recommendations ever since it was constituted.

38. *Rescue Arrangements.*—I have comments to offer in this connection in another capacity (Organising Secretary of the Dhanbad Sub-Division Blood Bank) that I shall submit* separately. I would here content myself by saying that there must be a central supply of serum and that there should be, for the two major coalfields, (Bengal and Bihar) one Central Blood Transfusion Service, with no provincial barriers as exist at present, and that all colliery doctors should be educated in the principles of serum and blood transfusion. There should also be at every colliery hospital at least one transfusion set reserved for blood and serum transfusion and where proper storage facilities exist a minimum stock of prepared serum.

39. *Education facilities in the coalfields.*

As far as the bulk of colliery labour is concerned I offer my opinion that primary education hardly exists. Certain companies make some arrange-

ments, and some make excellent arrangements, but compared with the total mining population I think it will be found that the effort is relatively negligible, or at least very disappointingly small. So far as the ordinary civilian population goes primary education in the Jharia coalfield is in what I consider to be a shocking state.

High education is not much better provided for. There are a few H.E. (Higher English) schools. They are totally insufficient for the real requirements and I doubt whether their equipment would pass very close inspection. (I say this without the least desire to belittle their efforts. It is simply a matter of inadequate funds.)

The Indian School of Mines is the only science college of university rank in the two coalfields. There has been some public demand in recent years for the establishment of a Science College in the Jharia Coalfield and some progress has been made with the scheme, but I believe funds are still insufficient for a start to be made.

Evening Classes for the mining population are provided by the Bengal and Bihar Governments, each within its own sphere, and administered in general by a joint Mining Education Advisory Board. In a Report on Mining Education that is under preparation, I have stated, in effect, that the classes are inadequately financed, hopelessly equipped and only a sorry substitute for their counterpart in England or the U.S.A. I have recommended their replacement by a centrally directed scheme. (I use the word "centrally" in its most general sense.) There are no facilities for the training of electrical supervisors, even in the existing evening classes. They, and other technicians, must be provided for in future.

The whole question of mining education is in the melting pot at present. The special requirements of the mining industry make it, in my opinion, desirable to establish a central mining education authority.

* * * * *

QUESTIONNAIRE II

17. *Central Marketing Agency.*—(See also reply to paras 29—34).

I do not think that this country has yet reached the stage of being amenable to regulation of the use of different types of coal for the specific purposes for which each is suited. There is, I fear, great need for an educational drive, to enlighten fuel users throughout the country about the possibilities in the matter of the more efficient use of fuel. Occasional conferences attended by representatives of the most important coal consuming units might be worth considering. I think it would be found that there is a surprising amount of ignorance regarding the nature of coal, even among experienced coal users.

I think that coal should be sold by a system by which basic prices would be fixed, according to the various characteristics relevant to the circumstances, and that penalties (and in some cases premia) should be applied in respect of departures from the specifications. The "characteristics" of the coals that would determine

*Not printed

the basic price in each case would be any or all of the following :—

- (a) Loosely held moisture (visibly net moisture), as distinct from (b),
- (b) Inherent moisture (a more or less fixed characteristic of most coals),
- (c) Ash content,
- (d) fusibility of ash, or tendency to clinker,
- (e) volatile matter content (calculated on the dry, ash-free basis),
- (f) coking power,
- (g) screen analysis,
- (h) sulphur content, \ especially in respect
- (i) phosphorous content } of coking coals.
- (j) etc., etc.

In the majority of instances, of course, only one or two of these would be taken into consideration, and small industrialists would not wish (or be competent) to use the system, but the price could still be arranged more or less according to the same principles. Some companies in India already buy and sell coal on analysis. The practice is found to be feasible and should be encouraged.

III

High Grade Metallurgical Coal

38. Metallurgical coal is bituminous coal possessing caking properties in such degree as to produce, on carbonising at temperatures of the order of 1,000°C, a hard reactive coke of sufficiently high shatter test index to be used in a blast furnace. The expression "high grade" may refer to either (a) caking properties or (b) low ash content. Keeping in mind the fact that a high ash content may mask excellent coking power of a coal (which would become apparent upon removing a substantial proportion of the ash-producing stoney matter in the coal) it may be stated that more than 90 % of the Barakar coals of the Jharia coalfields are high grade metallurgical coals. In a few instances portion of seams near the out-drops have, through past ages of oxidation and weathering in general, lost much of their coking properties, but with those exceptions the above statement holds. But the fact that high ash content masks, and therefore renders unusable, the coking properties makes it necessary either to exclude from our calculated reserves the bulk of the seams in the Jharia coalfield below No. X or to make allowances for the extent to which a reasonably clean product can be obtained by "washing".

Further more many of the best coking coals of the Jharia coalfield are of such high quality for the purpose of coking that they can, without disadvantage, be mixed with considerable proportions of less highly coking coals, e.g. those from the Raniganj coalfield. Presumably the Chairman of the Coal Blanding and Coking Committee will be giving the Committee the benefit of his views on this question.

IV

High Grade Steam Coal

50. The expression "steam coal" is rapidly becoming obsolete in western countries. The variety of furnaces and mechanical stokers now available make it possible to burn almost any kind, grade or screen size of coal for raising steam a stoker being available for any kind of coal or a coal being available for any kind of furnace or stoker. Consequently it would appear desirable to attempt to discontinue the use of this term, for which it is now almost impossible to give a definition. In this country it appears at present to be applied to any large size coal, more especially those from the Raniganj coalfields. I find many coal producers in the Jharia coalfields using the term merely to mean coal over 4" or 6" or 8" in size, and others applying it merely to run-of-mine coal.

Washing Of Coal. Para. 35 of Questionnaire.

This term is taken to mean cleaning, or reducing the ash, by whatever means, of coal on a commercial scale.

I have been investigating this subject for the past 18 years. Work done by me on Indian coals up to 1938 was on laboratory samples and the results of some of that work are recorded in the Transactions of the Mining and Geological Institute of India (Vol. XXX 1936). From 1938 to 1944 I continued the work, treating larger representative samples of the size used in Britain and the U.S.A. by the technical advisers to manufacturers of coal washing plant. Since 1944 the work has been financed almost wholly by a grant from the Council of Scientific and Industrial Research. My opinions are, accordingly, based partly on my earlier work from 1926 to 1944 and partly on the results of the work done with the aid of the grant referred to. In so far as they are based on the latter they are submitted with the permission of the Director of Scientific and Industrial Research. They are, however, my personal views.

Examination of the X-ray photographs accompanying the paper I refer to above show that a high proportion of the ash-forming mineral matter of our Indian coals is so inherent a part of the coal substance that without grinding almost to an impalpable powder it cannot be separated from the pure coal substance. But the photographs also show that there are particles, and sometimes bands or patches of relatively high-ash material that can be separated from the rest of the coal substance by crushing and that, if crushed and so separated, could be theoretically removed in a modern washery. There are also instances of the occurrence of what are (incorrectly for the most part) called shale bands or high ash stoney coal that are, in actual practice, removed by hand pickers (who judge quality by purely visual inspection). This high ash material that is thus removed on picking belts would, of course, be automatically and much more efficiently, removed in a modern washery. I doubt whether coal producers in India who have installed and

are operating picking belts realise (a) the extent to which such picking is inefficient and (b) the extent to which the present "pickings" or "rejections" would be efficiently treated in a modern washery, especially after further crushing. This point is one for separate investigation.

The Committee asks "what results have been achieved". As far as I know, only one large scale cleaning plant has up till now been operating in India (but perhaps my information is slightly out of date). I refer to the use for some years, at the Singaneni collieries of a Barrisford Dry Cleaning Plant. For technical reasons I do not favour dry cleaning methods for the majority of our Indian coals, especially Barakar and Raniganj coals. From a consideration of the results so far obtained I am inclined to recommend the adoption of one of the several processes depending mainly (but not exclusively) upon specific gravity principles, the coals being de-dusted prior to treatment, or smalls being treated in a vacuum froth flotation plant (which must not be confused with the froth flotation plant of the type used for the treatment of metallic minerals). The Rheolaveur process will also, I think, prove to be suitable for treatment of slack coals. The selection of the type of washer, however, is one that requires consideration of the results of many more large scale tests that it has yet been possible to perform, and also tests on coals from other areas.

Since receipt of the grant I refer to I have concentrated on the lower seam of the Jharia coalfields, especially Seam IX. 81 full-seam samples have been tested, of which several have been submitted to two and some to three additional tests after crushing. Of these, 67 have been from seams in the Jharia field, the remainder being from the Bokaro field and the Central Provinces, Baluchistan, Assam and Sind. Four have been treated specially for sulphur content reduction. Owing to the conditions in which the work is organised at present it has not yet been possible to include samples from the Raniganj coalfield. I have, however, treated some of them in my former work.

The method adopted for the tests is that followed by manufacturers of coal washing plant throughout the world for judging coal washing possibilities. They are not "test tube and beaker" methods of unpractical scientists but give a reliable indication of what a large scale washery or coal cleaning plant would actually achieve.

It is difficult as yet to generalise with confidence; in fact it would be unwise to do so at the present stage. The following summary of the results so far obtained will help the committee to get a picture of the problem.

The quality of 22 samples of Seam No. VII tested recently varied greatly, the ash content ranging from about 19 % to nearly 37%. In judging cleaning possibilities I have tentatively adopted an ash content of 16 % as a suitable standard from the point of view of the metallurgical coke manufacturer. Judging by these tests the amount of clean coal that Seam VII would give varies from as little as 16 % to 25%. The

coal giving the lower result and 30 % of ash had been crushed to $\frac{1}{2}$ -inch, for this test. The coal giving the higher result had 19% of ash; another with 19.31% of ash gave 85% of 16% ash coal. Both these samples were crushed to $\frac{1}{2}$ -inch size. Other clean coal recoveries with this seam were 76%, 68%, 70%, 71%, 74%, 74% and 75% (coal with 16% ash).

The coal giving 68% or 16% ash clean coal had been crushed to $\frac{1}{4}$ -inch; whereas prior to crushing it gave only 52%.

Only 4 samples of Seam No. VIII have been tested, with very disappointing results—but the number is, of course, too small to justify generalisations.

Seam IX.—26 samples were tested, of which some were resubmitted to tests after further crushing, making a total of 33 tests. The ash contents ranged from 19% to 31%. These gave from 15% to 84% of 16% ash clean coal, the lower figure being with a sample containing 26.4% of ash and the higher from one with 19.76% of ash. As these coals have excellent coking properties it is pertinent to consider the percentage of "clean" coal having a higher percentage—say 20%—of ash, for the purpose of blending with lower ash coking or semi-coking coal. Recoveries ranging from 40% to 90% were obtained.

Seams XIII and XIII B. These contained from 16.35% to 21.92% of ash and all gave over 80% of coal with 13% of ash. That with 21.92% of ash gave 88% of clean coal with 16% of ash.

The numbers of samples from the other seams were too small to justify anything but the mildest of generalisations. Recoveries of over 75% of clean coal with 14% to 16% of ash were obtained from raw coals containing from 18% to 24.5% of ash. One sample of XVII Seam containing only 10.84% of ash gave 15% of special low ash coal containing 3% of ash—the test being carried out with a view to see the possibilities of obtaining very low ash for chemical purposes. The same coal gave 50% of coal with 6% of ash.

The tests on coals from other fields were for the most part performed for special purposes, e.g. to ascertain the extent of possible reduction in sulphur content. The Baluchistan and Assam coals responded very poorly indeed. Sulphur reduction by orthodox methods may be entirely ruled out in these cases. The tests on the coals from the Central Provinces and the Bokaro field were on a par with those on coals from the Jharia field, but the number tested up to date is too small for to risk generalisations. In certain individual cases the economic possibilities justify further investigation into the detailed economies of washing run-of-mine coal.

The majority of these coals tested since the receipt of the grant referred to were tested in the course of working out a scheme for collaboration with another coal blending and coking scheme. Consequently the scope of the investigations has been somewhat restricted. The more general question of washing with a view to producing a low ash raw material coal, as distinct from producing a low ash meter raw material

for the manufacture of metallurgical coke (either with or without blending with a non-coking coal) has not yet received attention. I have, however, tested several other coals prior to receiving the grant, the same methods being used for testing run-of-mine samples. Recoveries of from 65% to 75% of clean coal with 4% to 6% less ash than the raw coal were achieved. One 15% ash coal gave 75% of clean coal with 11.5% of ash.

The above evidence shows that there is promise of substantial reduction in ash content, sufficient to justify a comprehensive extension of the investigations. That investigation should extend to the major coalfields.

There is another aspect of this matter of obtaining a high percentage of clean coal, namely that of subsequent treatment of the rejected material. The "rejections" from the washing of run-of-mine coal are normally crushed for further treatment. The parallel course of attack in the case of these high ash coals that were tested after crushing to 2" (1" and $\frac{1}{2}$ -inch) is that of producing (a) a smaller amount of low ash coal, (b) middling an intermediate amount of ash (say from 18% to 25%) and (c) rejections. By contrast with the ordinary run of British coals, we have to make what is called a "cut" at a higher specified gravity to obtain a reasonable yield of clean coal from these relatively high ash Jharia-Barakar coals. If, however, we make one cut at a lower specific gravity and another at an intermediate specific gravity we obtain the three products above referred to. That procedure (common in modern washeries) merits very careful consideration with our Indian coals. The stoney high ash material of British coals is much more definitely shaley or stoney than is its counterpart in our Jharia and Raniganj field coals, containing, as it does up to 60% or even 70% of ash, whereas the corresponding high ash material of our Indian coals may have as little as 35% of ash, the amount ranging from about 35% to 50%. 40% is a fairly representative figure, this being obtained with a "cut" at 1.38 sp. gr. Making a cut to produce a lower ash clean coal and another one to produce middlings we might get our two primary products with any 15% of ash and 25% of ash respectively. This procedure is, of course, common throughout the coal mining world or rather coal treatment world.

Some modern coal washeries are designed to produce these two primary products in one operation. Certain of the gravity type washers are stated to give two clean products. Whether they will be found efficient in handling our Barakar and Raniganj coals is, in my opinion, doubtful, but the matter has yet to be examined by the technical advisers of the washery manufacturers.

The specific gravity type of washer to which I refer is one in which a heavy mineral (sand, magnetite sand, powdered barytes etc.) is maintained in suspension in water, this suspension acting like a stable liquid of pre-determined density on which the coal floats or sinks according to its ash content. Washers of this type offer the advantage of handling coal without the necessity to screen into several sizes, but the disadvantage of not being able to deal with very small "fines". For

the successful treatment of fines we may require to dedust or, alternatively, as suggested above, employ one of the more modern types of vacuum froth flotation washers.

If the fines from Indian coals cannot be efficiently used we are faced with a serious economic problem, owing to the necessity to crush such a large proportion of the coals to be cleaned. Here we encounter a fortunate property of the majority of our Indian coals. In almost all but not quite all of our Barakar and Raniganj coals the low ash material tends to accumulate in the smaller screen sizes. This is due to the relatively large amount of low ash vitrain streaks and bands in these coals, these, being friable (brittle) tending to become concentrated in the fines. In consequence the ash content of the large size coal, and more especially of the rubble sizes, is always higher than that of the run-of-mine coal and that of the slack coal is always appreciably lower. Here are the results of three screen analyses of coals, taken entirely at random from a large selection:—

SCREEN	PERCENTAGE OF ASH.		
	Coal A.	Coal B.	Coal C.
Over 2".	26.58	29.99	23.30
1" to 1"	26.20	29.57	20.91
1" to $\frac{1}{2}$ -in.	24.92	31.13	20.25
$\frac{1}{2}$ -in. to $\frac{1}{4}$ -in.	25.42	31.39	20.57
$\frac{1}{2}$ -in. to 1/8"	23.72	28.87	19.67
1/8" to 30 mesh.	19.84	24.47	13.02
below 30-mesh.	21.76	21.61	17.56.

(The contrary state of affairs has been observed in the coals of Assam, Baluchistan and Sind).

It should be noted that there are some exceptions to the above general rule, particularly in those instances where machine cutting has been carried out in a high-ash hand or close to a stoney floor. The whole subject is referred to in some detail in the paper on the Barakar coals of the Jharia coalfield referred to above (Tr. Inst. Min. Geol. Inst. Ind., Vol. XXX, 1936).

It will be seen that a certain amount of ash reduction can be effected by judicious screening. The point is also of considerable importance in the matter of efficient use of Indian coals. It is by no means an uncommon practice to engage a gang of coolies to break up the so-called "steam" coal (large lump) into smaller pieces of rubble size suitable for boiler firing, allowing the smalls to be removed perhaps for brisk burning, it not being realised that these fines have a much lower ash content than that of the rubble thus produced. Where rubble size coal is more efficient for use in steam raising it should be bought as rubble and not produced by this extremely wasteful method. The same point might well be kept in mind in considering problems relating to firing railway locomotives.

ORAL EVIDENCE OF DR. C. FORRESTER, PRINCIPAL, INDIAN SCHOOL OF MINES, DHANBAD.

Question : You have severely criticised the present method of analysis adopted by the coal Grading Board and you have gone so far to say that the information supplied is misleading. Could you tell us what in your opinion would be the ideal method of analysis?

Answer : It is a very big problem indeed. It is one on which we ought to have a conference. In my opinion the principles should be those of the Fuel Research Board in England or the American Society for Testing Material or the British Standards Institution. They are all very similar and there are not fundamental differences between them. I think, however, there may be a case for modifications in respect of certain tests for Indian conditions, particularly during monsoon periods. With that qualification, I say that the general principles enjoined in those methods which have been well standardised should be followed.

Question : You will appreciate that the Coal Grading Board was entrusted with a specific job in order to provide the guarantee of quality in respect of coal which was going to be shipped from this country. So, its functions and obligations are very limited.

Answer : May I comment on that? I know that and knowing that fully well, I still hold the same opinion. The essential point is that different people analysing the same coal must use the same method. Your result must be comparable with my result and we cannot achieve that by the present system, using different methods.

Question : If we recast our method of analysis and bring it into line with the practice in other countries, will it be of benefit to our own consumers?

Answer : I should'n't like to say benefit. But it will at least avoid disputes and therefore presumably should be of ultimate benefit. It might in fairness to both the suppliers and consumers be necessary to make adjustments in respect of the figures at present adopted for the various grades in consequence of those changes in methods, but I do not think the changes would be serious. They would be mere adjustments.

Question : Do you think there are any practical difficulties to-day in changing over to the methods you have recommended?

Answer :—There is one namely, that of determining moisture, especially under monsoon conditions. I realise that that is the practical difficulty in India, especially in respect of "air drying". But there should be no difficulty in adopting a uniform practice in respect of inherent moisture.

Question : You have stated that grading should be of the coal as delivered. Does this

involve sampling and analysis of each consignment of coal?

Answer : It might, but there are many cases, as far as I know, where the quality of coal from one particular seam or business concern remains reasonably steady and only occasional check analysis is found to be necessary. I do not think there is need to analyse every consignment of coal.

Question : About analysis whose should be the responsibility, that of the consumer or the producer? Or do you think it can be fitted in a scheme of Government regulated utilization of coal?

Answer : I do not favour Government control. I believe in leaving these matters as far as possible to the industry itself. I think they might need guidance from Government in the form of advice from technical personnel. I presume the logical answer is "the suppliers". It would be up to the consumers to bring to the notice of producers instances of failure to maintain specified quality.

Question : What is your view about de-sulphurising Punjab and Assam coals?

Answer : There is no chance of doing that economically at present. It may be possible to lower the sulphur content by about a half but even then the remainder is so high that the coal remains unsatisfactory for those purposes where Sulphur is objectionable.

Question : From the point of view of its use in railway boilers, the problem is insoluble, unless you get a differently designed boiler. Is that your opinion?

Answer : The tube should have sufficient resisting action against sulphur. Watertubes and other parts of the furnace should have sufficient resistance to sulphur compounds. A certain amount of corrosion takes place when the furnace is cold. This must also be kept in mind.

Question : In respect of the Fuel Research Institute, is it your suggestion that it should be under the proposed Department of Mines?

Answer :—I am inclined to favour control by a semi-official body, some thing along the lines of the Mines Rescue Committees, rather than complete control by Government.

Question : Do you know the procedure in U.K.?

Answer : There it is under a Govt. Dept., but persons are appointed from various scientific organisations and I think there are other non-official research stations. Though under Government, these bodies have more internal freedom of administration than in the corresponding Department here.

Question : You are aware of the staff sanctioned for the proposed Coal Research Institute. Do you consider that it is adequate for the proper working of the Institute?

Answer : It is totally inadequate. Probably not 1/5th of what is required if the national coal survey is to be quickly and efficiently done.

Question :—Have you come to the conclusion that a complete analysis of the various types of coal in this country must necessarily be completed within a reasonably short time?

Answer :—There are three aspects involved, the national coal survey, the methods that are to be used to carry out that survey and the general matter of future survey. It is in my opinion necessary to come to an agreement about the methods first and then proceed with a survey. The matter of coming to an agreement is relatively small compared with the major problem of a survey and I think it could be quite easily settled at a conference between the more important workers in the field.

Question :—How long do you think this survey will take?

Answer :—It will take several years. In Britain it has gone on for 15 or 20 years. But considerable progress can be made within 4 or 5 years.

Question :—With your knowledge of the coalfields of India, do you think there is any case for making out a priority list of the various coalfields for this survey?

Answer :—Well, I certainly think that after the Jharia and Raniganj fields the C.P. coals should be fairly thoroughly investigated first. There is also a considerable need for investigating the qualities of the Assam coals that may be useful for coking and briquetting. It is not high grade metallurgical coal but it can be used for other purposes.

Question :—You have mentioned, in respect of education a central mining education authority. Can you elaborate on this?

Answer :—I do not like the evening mining class system and I also find defects in the system in my own college. I am not satisfied, for example, that we are getting enough of the right type of men to become good miners and practical mining engineers. It seems to me that it would pay the industry to have some sort of a central organisation to work out a scheme of education. There are the associated problems of training engineers (as distinct from mining engineers) for mines and there are also the electricians and electrical engineers to be catered for. Too little provision is made at present for those technical personnel. There seems to be little co-ordination with the other training institutions.

We are making provision for elementary education and evening mining education of a sort, but there is no definite course of training for mechanical and electrical engineers for the mining industry. The training of men who take up mine surveying as their profession is also unsatisfactory.

Question :—Have you any comments to make on the prevalent belief regarding the School of Mines in Dhanbad, that the curriculum there is not, in its practical results suitable for the conditions prevalent in the Indian coal industry?

Answer :—I am not entirely satisfied myself. There have been alternative schemes put forward, e.g., it has been suggested that we might follow something like the Sheffield "sandwich" system but the trouble is that mining engineering has now become such a highly technical matter, and the curriculum is expanding to such an extent, that if all the necessary theoretical instruction is to be given and the sandwich system followed, we might ultimately have to take more than five years to cover the course, which would be absurd. Yet a theoretical grounding in geology, mechanical engineering, electrical engineering and subjects other than mining itself must be covered.

Question :—What is the average number of students who join the School of Mines?

Answer :—At present it is 24 per year. It was raised to 48 last year and there is a proposal to raise it to 60, of whom 48 would be mining students and 12 geologists. That is still being considered by the Re-organisation Committee.

Question :—Have you any idea as to the demands of the industry?

Answer :—The number we were turning out before the war together with what the Benares Hindu University was turning out, was, I think, just sufficient to meet the annual wastage. I don't know the number that Benares Hindu University was turning out but I think it was of the order of five to ten. This is a matter on which I should myself like to have more accurate information viz., the annual wastage in the industry. Keeping it at 24 for the last ten years we have just managed to keep our heads above water. Last year there was a demand from the Indian Colliery Owners' Association to increase the number to 48 and I am not quite sure whether it was justified on the facts. At any rate we have had to reduce it again to 24 this year, because we do not have the residential or laboratory accommodation. I should myself be very glad to know the facts because we have got to base our plans for the future on the result of such an enquiry.

Question :—You have suggested in your memorandum in reply to the second questionnaire, that the characteristics of coals should determine the basic price. Do you know of any other parallel in other countries?

Answer :—Yes, I was studying this problem for some years before the war and I then knew of several instances, e.g., United States Navy and more recently I have read an account of the system adopted by New York City in placing contracts for the supply of coal. The American Navy had a system of buying coal to specification; the Canadian Government in certain Departments do it also. I had particulars of some of these before the war, but I have not been able to keep them up to date during the war, or obtain information about recent practices.

Question :—There was no such practice in UK before the war.

Answer : Yes, I made enquiries about this in 1935, and learned of several trade organisations which adopted the practice. If I remember correctly the Lancashire and Cheshire Trade Association had a scheme that worked well and there were others. The idea underlying the United States Navy system was making a specification, fixing a basic price according to the market from time to time and then applying to the basic prices a *minus* or *plus* penalty or premium (as the case might be) in respect of deviations from the specifications.

Question : Although you consider that this country has not yet reached the stage of being amenable to the regulation of the use of coal, yet if prices were to be fixed based on characteristics of the coal, that will be a step forward to the regulation of use ?

Answer : It would, but it would, perhaps, be difficult in practice, because it would be necessary to find out all the particular requirements according to the different uses to which the coal would have to be put. There would, therefore, have to be different kinds of specifications, but a beginning might be made in respect of the coals required by the more important consumers in the country.

Question : You have stated that more than 90 of Barakar coals of the Jharia field are high grade metallurgical.

Answer : Yes I perhaps did not make it quite clear in my written reply. What I meant was that, irrespective of the damaging effect of ash, the caking power of nearly all these coals is high. That is to say, the pure ash-free coal is of good coking quality. Of course, a very large amount of ash seriously lowers the quality of the coke and interferes with the satisfactory coking of an otherwise good coking coal.

Question : Just the caking power. That is not the only quality you look for ?

Answer : No. You have to consider ash content separately as well, and for that reason, in a subsequent note which I am sending you, in response to another enquiry, I am pointing out that Jharia coalfield seams below No. 6 can be ruled out entirely because of the very high ash content and the impossibility of cleaning or lowering the ash content economically. In some cases we can hardly say it is coal, yet it is, to the scientists, caking coal.

Question : The point I want to make quite clear is this. Are there certain seams in Jharia below 12 which by treatment, *i.e.*, by washing or some other process, could be utilised as well as any other coking coals for blast furnaces ?

Answer : I should think so, as far as seam No. 9 and No. 7, but the further down you go the lower is the percentage that you can use for the purpose. I don't know that our tests have covered a sufficient number yet to be able to give you a reliable general percentage figure.

Question : Is it your impression that such treated coal could be utilised in the coke ovens without blending with other coals ?

Answer : Cleaned coal from the Jharia Barakar coals will give a good coke without any blending whatever, *i.e.*, they are all first class metallurgical coals provided the ash is sufficiently low. They are all caking coals "F" except for a very small proportion due to unexplained local anomalies, notably in seam.

Question : You consider that seams from 9 onwards—*e.g.* 9 to 12 or higher—when cleaned give a sufficiently high percentage of clean coal, *i.e.*, lower ash percentage, making them suitable for coke oven purposes?

Answer : The percentage you will get may be as low as 15% in some cases; but in other cases as high as 80%, *i.e.*, to produce a clean coal with 16% ash.

Question : Are you aware of any process by which non-caking coal could be converted into caking coal?

Answer : Heat treating, heating in inert gases, and other expedients have been tried and there is at present little doubt that in due course some of the non-caking coal such as the bulk of the Raniganj coalfields might be converted into caking coals, suitable for coke manufacture.

Question : You have recommended discarding of the use of the term "steam coal"?

Answer : I think, since I wrote that, that it is rather a strong statement, but it is certainly an unfortunate expression because some people use the expression simply to mean large coal. If size is the only point at issue, the coal ought to be described according to size and not, merely because it is large, be given the same 'steam coal.' After all the greater proportion of all coal used throughout the world is used for raising steam.

Question : It has been suggested to us that in view of the lack of knowledge and experience in regard to washing we should attempt to wash only such coal as is required for use as metallurgical coal or for use in furnaces; and the other coals with high ash content should be used as they are.

Answer : This suggestion is made in conformity with the knowledge that very many rapid improvements are being made in boiler and furnace design for the utilisation of coal with ash content as high as 30% I agree in general with the suggestion; but surely it is going to entail greater disadvantage in the matter of restricting the transport of high ash coal for long distances in railways. Would not that be an aspect which would require special consideration? There is no point in sending high ash coal from the Raniganj or the Jharia field across country to Bombay. It should, I think, be possible to work out some kind of formula according to which there would be a relation between the distance over which coal would be transported and the maximum percentage of ash permitted in respect of such distance; in other words, the higher the ash the shorter the distance over which it should be allotted transport. The proposal is scientifically sound. The question is whether it can become a practical one.

Question : From your knowledge of the coal fields of Jharia, Raniganj and Bokaro, do you think it is a practical proposition to establish a system of Central Washing Plants?

Answer : I used to think so. But I see many practical difficulties in grouping so many units sending their various types of coals to the washing centre. It also involves a very elaborate system of book-keeping, showing that such and such a colliery sent such amount of coal etc. It will be difficult to distribute the washed coal. I think presumably some Central Washing Plant and such might be established for coking slack, as the number of coking plants are small. Again the various characteristics of the coal from different seams vary and it does not follow that if they are mixed prior to washing the results obtained in the washability tests for the individual coals will collectively give the results one should expect mathematically. The difficulty is that, although generally the higher the ash content the greater the specific gravity, the law (if such it can be called) does not follow what the mathematician would call straight line graph. If the ash content of coals in the Jharia coalfield were arranged vertically and the specific gravity reactions arranged horizontally in a tabular manner, it would probably be found that within each specific gravity range there would not be a very great range of ash content, and on the whole not more than 2-3 per cent and in consequence, I think, the small size coals from all the seams could effectively wash together, i.e., there would be no point in washing seams separately, if the clean coal were to be mixed later on. That would not, however, apply to the washing of large size coal. The matter would have to be investigated before giving an opinion on that aspect.

Question : What degree of importance do you attach to the moisture content of coking coal?

Answer : The Percentage of moisture in coking is a difficult one to understand. On the whole I should not expect more than about 2.5% of what we call 'inherent moisture' in any of our coking coals. There are, of course, a few exceptions. Very few Jharia coking coals contain more than 1% of inherent moisture.

Question : We are informed that in coking oven practice they sometimes increase the moisture content of coal.

Answer : That is correct. I have seen this done at coke plants in India. It should be clear that the moisture in question is *added* moisture; it is not the same thing as the *inherent* moisture referred to in my former answer. Added liquid moisture, such as that added by spraying undoubtedly modifies the quality of the coke produced because it modifies the operation of coking within the coke oven, but that is a separate matter not related to the inherent moisture (that is to say, moisture that does not evaporate spontaneously even on long exposure in a dry climate) cannot be a coking coal, whereas a coal whose inherent moisture is only about 1% (as in the case of the most of the Jharia coals) does not cease to be a coking coal if (for example during the Monsoon) it

becomes very wet and acquires say 10% of loose additional moisture.

Question : But when it is put in the coke oven and moisture is added, will the latter not have the same property of moisture in the coal?

Answer : No. As explained in my previous answer, added moisture and inherent moisture are not the same. If to a coal containing 1 or 2% of inherent moisture, an additional 5 or 10% moisture (e.g. in the form of liquid water) is added, that additional water will be evaporated during coking. Additional moisture does not affect the coking power of the coal though it may affect the operation and ultimately affect the quality of the coke produced.

98. WRITTEN EVIDENCE OF MR. S. K. SIRCAR F. O. KUSUNDA, DT. MANBHUM

QUESTIONNAIRE I

No. 37 Referring to above subject, I would like to make the following observations regarding No. 37 of the questionnaire, i.e.,

"What progress has been made in the recovery of benzol as a bye-product in the manufacture of metallurgical coke etc."

Up to the beginning of the last war, out of the eight coke oven plants in India, only two of them were recovering benzol. The total production could not have exceeded 175,000 gals. per annum. The advent of the war brought into existence two more benzol recovery plants, (both Government owned), producing mainly pure Toluol for nitration and T. N. T. manufacture. This increased the benzol production very considerably. Whether these latter two plants will continue to work is not known.

The progress in the recovery of benzol has otherwise been very limited and scanty. This is attributable to two main reasons, i.e.,

1. Its use for industrial purposes in this country is still very limited.
2. Its inability to compete in price with petrol as a motor fuel. Even though produced within the country, it has to pay the same duty as petrol.

In order that further progress in the recovery of benzol can be made it is essential that it should be made duty free and its use as a motor fuel encouraged so long as its industrial use is not well developed,—even to the extent of making the use of a benzol/petrol mixture compulsory. Apart from all other considerations, such a mixture is undoubtedly superior to pure petrol since benzol has got high anti-knock properties. Whatever quantity of benzol is used at present for industrial purposes is largely due to the fact that it has been made duty free for the purpose, after years of representations and discussions with the authorities concerned.

QUESTIONNAIRE II

Finance :

11. Some of the collieries are so small that any expenditure of money on modernising their equipment and technique will result in financial loss.

Production :

14. The output of Indian Coal Mining labour can be improved upon by making them learn and use more and more mechanical appliances.

15. Contract system for coal raising does tend to improve output. This system has no doubt led to unsystematic mining methods wherever the work has been allowed to be carried out under less vigilance and control.

16. The expected deficit can only be made up by increasing the production of not only the existing mines but also by bringing into existence, new mines, more particularly, open cast mines, for quick results. A minimum return on the capital to be invested should be assured and it should be made known to the public that more and more mines are urgently wanted. In the case of open cast mines, the question of shortage of labour is not likely to arise.

Distribution and Marketing.

17. A system of price fixation and Government controlled distribution should be considered adequate. If the price of coal is fixed and offtake is assured there is no need to have a Central Marketing Agency. The price should be fixed by the Government in consultation with the producers and consumers of coal. The Government should see that the producer is regularly relieved of his stocks and the consumer gets regular and adequate supplies. Whether the production is in excess of demand or short of it, distribution should be equitable in every case. Under such arrangement brokers really do not come into the picture. If they must exist, they may be allowed to act as intermediaries between the Government and the party willing to avail of their services and pay for them.

18. Complete regulation of the use of different coals for different purposes is desirable from the point of view of efficient utilization of coal as a fuel. Such regulation is not possible till:

- (a) All Indian coals have been properly analysed and classified.
- (b) The advantages of using a particular class of coal for a particular purpose have been established and demonstrated.
- (c) The consumers are fairly well versed in the matter of using coal and knows exactly what he requires for his purposes.

19. The railways being by far the largest consumer of coal in India, regulation of use by them will no doubt go a long way to meet the requirement.

20. If the distributing authority assigns a particular class of coal to a consumer, it can be supplied only by certain collieries producing it. Under the circumstances, the question whether the correct coal was supplied by the colliery will not at all arise.

Transport.

22. The idea of distribution on a zonal basis as indicated here is confused and misleading. If over-all coal transport economy is worked out on the basis of the net available heat units in the coal transported, different coals from the same field may have different economic tanges for consumption.

23. Coal should be sold only on the basis of its calorific value. A pooling of rail freights, if at all done, should be with a view to keep the price of heat unit in the coal and not the coal itself, at the same level at various centres.

24. It is so. This arrangement has encouraged the inefficient use of coal. The principles of a revised freight rate policy has been indicated in reply to question No.23.

25. The freight rate should be based on the costs of moving the coal on the railways.

26. No. This will encourage hoarding and place large consumers at an advantage.

Price and Profits.

29. A return to free competition is not desirable. The Government should fix prices in consultation with the producers and consumers.

30. Control over the prices of coal supplies to the State Railways and Iron & Steel Companies only will no doubt help to stabilise conditions in the industry, but it may not help all the producers.

31. For the purpose of fixing prices the Government should appoint an ad hoc committee of official and non-official members, including the representatives of producers and consumers, to go into the question.

33. Mining operation is hazardous and the asset is wasting. In order that this industry may continue to attract capital, the percentage return on investment should be more than in the case of other industries. The price should be so fixed that the net margin over the costs is sufficient to yield a decent interest on the capital invested (say at least 10% when the bank rate is as low as at present) plus an additional sum in form of sinking fund instalment which when reinvested at a compound interest, will return the capital during the life period of the mine. An average span of life for a mine, average capital investment required and costs for working such a mine will have to be worked out for the purpose.

46. India's known reserve of metallurgical coal is very small and disproportionate as compared to her Iron deposits. Even if its use is restricted only to the metallurgical industry, it cannot be made to last long enough and an alternative method of smelting iron without the use of metallurgical coke has got to be developed sooner or later.

50. The term 'high grade steam coal' is a misnomer. Any Coal can be efficiently utilised for steam raising purposes under proper conditions. Modern Fuel Technology is sufficiently advanced for the purpose.

51. If low ash bituminous Coals with a high calorific value are being implied by the term 'high grade steam coal' there is no doubt that they were and are still used wastefully, at least to some extent in this country. Such coals should

not be used for raising steam in power stations and elsewhere, where an inferior grade coal can be readily used with efficiency.

52. Restriction in the use of such coals, if at all necessary, is not so much for conservation as for a matter of policy with respect to utilisation; a particular type of coal being used only for the purpose it is most suitable. The best form of restriction is to so adjust the prices of various grades of coal that the consumer for respective grades shall have no option but to use the grade most suitable for his purpose and that economically and efficiently.

61. Economic and efficient use of Coal in this Country or in any Country for the matter of that can be assumed only if it is too expensive for the consumer to use otherwise. Unless the improvement in this direction can be expected. Pulverised coal firing is practised in India to a certain extent, particularly, by the Cement factories—Colloidal fuel is not available in India. Its manufacture and use should be encouraged and developed. Possibilities of its manufacture, in this Country, however, largely depends upon other developments regarding utilisation of coal.

62. This is very true and desirable. Super power stations should be set up throughout the coalfields at suitable centres to generate electric power to meet not only industrial and domestic requirements, through an extensive grid system but also for the electrification of the railways on as extensive a scale as may be found advisable. This will also permit electric traction over the main roads.

The coal required for the purpose, should not be used in its raw state. It should be subjected to a process of low temperature carbonisation, before use, so as to produce soft coke, Coal oil or low temperature tar and gas. The hot coke derived can be utilised in the adjoining power station for steam raising. The coal oil which has got about double the calorific value of raw coal, can be used as such or as a colloidal fuel more conveniently and efficiently for firing locomotives and other steam raising purposes where cheap electric power is not available and the cost of transporting other types of fuel outweigh the advantages, if any, of using them, or even in diesel engines for industrial purposes and diesel electric traction.

The gas will yield a useful quantity of motor spirit for use in internal combustion engines.

Supposing the railways use 10,000,000 tons (the figure is very low, no doubt) of coal annually, with an average ash content of 20% and a ton of coal has to be hauled over, over a distance of 200 miles on an average, before it is used, the total haulage of coal is 2,000,000,000 ton miles annually. That due to 2,000,000 tons of ash contained in it, 400,000,000 ton miles. The efficiency of a modern power station boiler can be as high as 85%; that of the locomotive boiler is barely half that figure. The locomotives thus use more than double the quantity of coal for raising the same amount of steam.

10,000,000 tons of average coal when carbonised at low temperature will produce approximately;

Soft coke	7,500,000 tons.
Coal oil	180,000,000 gallons
Motor spirit	10,000,000 gallons.

7,500,000 tons of coke will help to raise enough power not only for electric traction in place of the steam locomotives but also for other industrial purposes. Besides, 180,000,000 gallons of coal oil and 10,000,000 gallons of motor spirit will be available for other useful purposes.

63. The present method of manufacturing soft coke is very wasteful and inefficient. The resulting fuel is very indifferent and far from the quality to be aimed at. For better results, economy and efficiency, the coal should be carbonised at a low temperature, say 750°C or there about, to get as better class of coke and recover by-products as indicated in the previous answer (62).

64. The purport of this question is not quite clear. If it is being enquired whether the coal carbonisation industry in India should be developed with a view to increase the production of liquid and gaseous fuel within the Country, the reply is "most definitely so".

Low Temperature Carbonisation industry is the industry to be developed for the purpose. The production of liquid and gaseous fuel should be further augmented by the liquifaction or hydrogenation of coal (Bergius method) and catalytic reaction of gases (Cox & Hydrogen—Fischer Tropsh process).

ORAL EVIDENCE

Question.—You have suggested that the output of Indian coal mining labour can be improved upon by making them learn and use more and more mechanical appliances. Do you think it is practicable to get the present class of miners educated sufficiently to be able to handle coal-cutting machines and other mechanised plants?

Answer.—To a limited extent.

Question.—Is it your suggestion that the improvement in production which we are hoping to obtain and which we are asking the industry to provide can be obtained from the existing mines chiefly or do you think we have to open new collieries?

Answer.—I have suggested that the expected deficit can only be met by increasing the output and that is effected in two ways: (1) by increasing the output of the existing mines and (2) by bringing new mines into existence.

Question.—In suggesting that, you have told us that we should keep in view the open-cast method. You go on to suggest that the minimum return on the capital should be assured. Who should give the assurance?

Answer.—Really speaking, the creation of market conditions should be such as to assure the return on the capital.

Question.—Are you suggesting that the State should come forward and give a minimum guarantee of profit?

Answer.—That may not be in the form of money. By assuring off-take and minimum of price the State can help.

Question.—It is for the individual operator to exercise his own Judgment in the matter. He can assess the value of prospects of the future and act accordingly.

Answer.—Ordinarily in a country where statistics are available, it would have been the case.

Question.—So your suggestion is that Government should come forward and estimate what the requirements of coal are and under its authority give publicity to them and that there should be a fixed price for the coal produced in the colliery.

Answer.—Yes. It should be assured that there is going to be a shortage of coal if the output is not increased and that if the output is increased there should not be any price cutting as a result of disproportionate increase. For that reason price fixation is also necessary.

Question.—Could you give us some idea as to what you think should be the basis for fixing prices. What factors should be taken into consideration?

Answer No. 7.—The basis should be the average cost plus a certain amount of profit sufficient to ensure a decent return on the capital invested. Considering mining operation is hazardous, this profit should be higher than the Bank rate; I have suggested in one place somewhere in my reply to the questionnaire, about 10% if the present Bank rate is $2\frac{1}{2}$ %. Over and above that there should be an additional profit equivalent to a sum to be worked out, which when invested annually at compound interest in form of a sinking fund, will redeem the capital during the life-time of the mine, since a mine is a wasting asset. The profit should be something higher than the bank rate. I have suggested in one place somewhere about 10 per cent, if the present bank rate is $2\frac{1}{2}$ %. Over and above that a sum will have to be worked out which should be invested annually on compound interest for a mine is a wasting asset, in the form of a sinking fund.

Question.—You have also suggested that distribution should be equitable in every case. What do you mean by that?

Answer.—Every mine should have a certain amount of orders to execute. Some mines are flooded with orders and others get no orders at all.

Question.—If you are regulating the use of coal, you are also restricting the amount of coal produced of different classes.

Answer.—I am working on the idea that there is shortage of coal and for that purpose regulation will have to be directed and production increased. It may so happen if the distribution is not equitable, certain mines will have more orders than other mines.

Question.—We have not large reserves of 'low ash bituminous coal' of high calorific value. They are usually in favour with certain types of consumers. Would you suggest that this low ash bituminous coals should be reserved in any way?

Answer.—No, I am not in favour of any conservation.

Question.—You have given us a new definition of 'high grade steam coal'. You have protested against the use of that term; you use the term 'low grade bituminous coal.' Do you think there are sufficient reserves of this?

Answer.—It only refers to one, i.e., caking coal of high quality for metallurgical purposes. We have not got any large reserves for iron and steel works. I have mentioned this in my memorandum. The life has been estimated variously it may be 50 or 60 years. The position is that conservation or restriction of its use is not going to help us. Certainly sooner or later we have to find out other means of smelting iron and that has got to be done.

Question.—That refers to the caking coal. I am referring now to other coals which are non-caking, with low ash, high volatile, i.e., Dishgarh.

Answer No. 12.—This coal does not come into the picture for any such consideration, if it is being implied that this coal should be conserved as it is the most suitable for steam raising purpose. I consider modern boiler installation suitable for using any grade of coal for steam raising purpose with high efficiency.

Question.—Do you consider, by further experiments, that Raniganj coals can be successfully used for low temperature carbonisation?

Answer No. 13.—I would put it like this: I strongly advocate some kind of carbonisation of coal before use. I object to the use of coal in its raw state and low temperature carbonisation is one of the best means of utilising coal in different forms. Out of the 400 or more plants designed for low temperature carbonisation, very few have met with commercial success. Unless we carry out some experiments on full size scale we cannot say anything definitely about the possibilities of using one type of plant or another, with success; but considering the importance of so much coke in this country for domestic consumption I think there is good scope for low temperature carbonisation.

Question.—Do you think that in view of the high cost of products like colliery, manufacture of similar product will have a ready market in India?

Answer No. 14.—I think the difference in the cost of the plant will not be much but in India the cost of manufacturer is expected to be lower.

Question.—Have you considered the question of the type of coal used on the railways? Are they using their heating efficiency wastefully?

Answer.—That is a difficult question. It depends on what efficiency they are getting out of their locomotives. As a rule, a locomotive boiler is not so efficient as a stationary boiler. It is ■

designed for efficient working. If coal is used for firing there are some adverse conditions present always, for instance, strong draught. The fuel bed is not in proper condition always.

Question.—Can you suggest any alternatives to coal ?

Answer.—Either liquid fuel, oil or colloidal fuel or pulverised fuel.

Question.—Are you in favour of an expansion in the manufacture of benzol in this country ?

Answer.—Yes.

Question.—What is the minimum form of assistance from Government that you would require ?

Answer.—Ensure offtake and assurance minimum amount of profit. There is strong competition from the petroleum people.

Question.—The present cost of production is profitable to the colliery company ?

Answer No. 19.—Yes. (This answer was given in reply to the question asking whether the present cost of production made it profitable to manufacture benzol, taking the present selling prices into consideration).

Question.—Then all that you require is guaranteed offtake.

Answer.—Offtake and the prices should not go down.

Question.—Is there any other point on which you would like to add anything to your evidence ?

Answer No. 21.—This is coming from me personally, not coming from my company. There are two benzol plants in existence that were brought into existence during the war on behalf of the Government. The fate of these two plants and their future working is very much going to govern the work of independent plants that have been in existence for sometime. The manufacture of benzol in the case of these plants is quite different, they being very much larger plants and on a different basis altogether. And their cost might not be comparable with the cost of manufacture with others. The Government, it is reported, is going to manufacture benzol or benzol products in future for distribution or sale to the public or they may hand over the plants to somebody. I have no exact information. So Government may be trying to fix the price of benzol. One does not know on what basis they are going to fix it but before fixing such prices Government should really consult also those who have been in the business or in the manufacture of the product.

Question.—Could you tell us specifically what is in your mind ? You mean that Government is fixing the price of benzol for the use of the public ?

Answer.—Government may be selling that product as Government manufactured product to the public at a certain price which may affect other people like us.

Question.—It will be lower than the present price. Is that your fear ?

Answer.—It may be so because the plant is of a different basis and the plant is very much bigger. It will certainly have a lower cost of production.

99. WRITTEN EVIDENCE OF SIR S.S. BHATNAGAR.

Questionnaire I

Q. (1) The work of the Department of Mines and the Coal Mines Stowing Board has not so far been commensurate with the size of the the problem of conservation of coal resources in India. I think all the recommendations of the Coalfields Committee of 1920 and the Coal Mining Committee of 1937 should be immediately implemented. The preoccupation of the Government with production problems during the war has hindered action on the conservation problems. But, now that the war is over, the question of the establishment of the Coal Conservation Authority should be vigorously pursued. The Fuel Research Institute with all its specialised equipment and personnel will work in close cooperation with this authority with regard to the research aspect of the problems.

Q. (2) In view of the coming industrialisation in India and in view of the fact that production of coal is not sufficient to meet the requirements of the country's needs, the export market for Indian coal has lost its significance and importance at least for the time being. There is at present no necessity of adopting special measures for pushing Indian coal in foreign markets and if any steps are taken in this direction great care should be exercised so as not to repeat the mistakes in legislation regarding grading of Indian coal. It is well known that the grading and tariff concession meant for export trade have given rise to very unsatisfactory mining practices with some disastrous effect to our already none too extensive coal reserves. Thus the whole question of conservation of high grade coal reserves *vis-a-vis* export of coal from this country should be fully re-examined from the point of view of national economy.

Q. (3) The grading certainly had considerable influence in reinstating Indian coal in the near East and China coast markets, but South African coal was allowed to compete with Indian coal in the Bombay market. As mentioned in answer to question 2 the grading resulted in development of selected mining, leading to great loss of coal. Further, only the better grade coals could take advantage of the grading system and the low grade coals could not in any case be benefited by such a legislation. The result has been to condemn the mining of low grade coal to put a premium on better quality coal.

Q. (7) It is not really a case of 're-grading' of seams as the existing data, in my opinion, are dubious and perhaps misleading. No systematic physical and chemical survey of Indian coal seams has been done and as such it is the most urgent problem regarding both marketing and utilisation of Indian coal. We wish to avoid the word 'grading' altogether and substitute 'Physical and Chemical Survey' instead. A survey must take into account the whole of the coal seam both laterally and vertically, but at the same time subsection of a seam will have to be analysed for their special properties, if any. Under no condition the sectional grading of seams as has been done under the Coal Grading Board should be conti-

nued as under the present circumstances this is a direct incentive to selective mining of coal leading to great waste.

Q. (8) The whole system of grading as has already been pointed out is wrong in outlook. It is certainly not desirable for the internal market. Instead of grading for internal market, we may substitute a sliding scale of prices according to the utility of the fuel to different classes of consumers and, I think, under the conditions prevailing in this country it should be left to the individual until enough data are available to enable us to work out a scheme for Government Control. Overseas market of Indian coal is not really important enough, especially in view of the increasing demands of coal in India to allow such artificial conditions in the industry to be created as has been done by the Coal Grading Board Act.

Q. (13) There does not appear to be enough rolling stock in the country necessary for handling extra coal production. As a first measure, both the rolling stock (open wagons) and private assisted railway sidings should be increased.

Q. (24) Mechanical coal cutters have replaced manual coal cutting in India only on a limited scale. Under our conditions it is difficult to say, without actual data, much regarding the effect of using machine cutting on raising costs. In a seam, where the ash content of the coal is fairly high, machine cutting would undoubtedly raise the ash percentage of the coal as 'mined' and unless coal cleaning practices are introduced machine cutting is likely to have adverse effect on the prices. Machine cutting will have to be introduced on a greater scale if we are to increase our production of coal to meet the demands of the coming industrialisation of the country. It would therefore appear that machine cutting will have to be combined with coal cleaning methods to obtain the most economical figure for raising costs.

Q. (28) To my knowledge little or nothing has been done to adopt standard locomotives to burn different grades of coal. I should point out that ash percentage of coal for use in locomotives matters only from the economy point of view in so far as a locomotive has to carry more coal than necessary with a higher ash coal and not from the technical point of view. Regarding the needs of locomotive fuel the qualities to be considered are the percentage of volatile matter, the size of coal and the clinkerability of the ash.

Q. (29) There is every possibility and it is merely a matter of technical detail, of adopting existing locomotives to different grades of fuel. There is also a possibility of converting these locomotives into pulverised fuel firing units. The main difficulty in this case has always been what is known as 'bird-nesting' in the flue exit, but manufacturers assure that this can be overcome if the problem is tackled earnestly.

Q. (31) Voluntary stowing is not likely to increase, at least in the case of smaller collieries. The only way to ensure maximum extraction under Indian condition is to depillar with stowing. As is already well known, this becomes expensive for many collieries and many of them cannot

afford to do this even with partial aid from the Stowing Board. The Stowing Board should explore the ways and means of helping private owners in solving the problem.

Q. (34) To my knowledge no published information exists on briquetting of coal in India. Some experiments were to be commenced by Prof. M. Qureshi in Hyderabad under a grant from the Council of Scientific and Industrial Research but this work is now said to have been transferred to the Osmania University, Hyderabad. The only other experiment on briquetting that has come to my knowledge is a little work on briquetting of Palana lignite in the Bikaner State. This was carried out without any binder and under over 8 tons per square inch of pressure. The operation was said to be quite successful. However, there is no reason why the commercial development of briquetting should not be successful in India.

Briquetting on commercial scale has been practised for many years in Germany, both for manufacturing domestic coke as well as coke for industrial and metallurgical purposes. In England briquetting of anthracite dust only is practised in South Wales. In India there is great possibility of utilising the so-called 'mines waste' coal (slack coal is said to be about a third in quantity of total raisings) through briquetting. It may be pointed out that this slack coal is often a better coal from the ash point of view being more vitreous in nature. This slack coal can be briquetted either with or without binder as the case may be and can be carbonized under low temperature conditions for yielding smokeless fuel for the domestic fuel grate, as well as for recovery of enormous quantities of by-products. Experiments will however have to be conducted on briquetting which should cover investigation on the nature of the binder, the strength of the briquettes (or of the coke produced by carbonisation of the briquettes) and briquetting without binder. Lignite and brown coal, if they contain waxy matter, can probably be briquetted without binder under sufficient pressure. There is also the possibility of producing coke from so-called non-coking coal by briquetting under pressure and under elevated temperatures. Experiments on these lines were carried out in the Department of Physical Chemistry of Warsaw University under the guidance of Prof. Swietoslawski and were reported to be quite successful.

In my opinion briquetting in India on a commercial scale would only be possible if it is carried out as an adjunct to Low Temperature Carbonisation Industry.

Of course, everyone is aware of the indigenous briquettes made in India from the coal dust or slack coal with cow dung and earth. Such a process is however too primitive and uneconomical to be used on a commercial scale. There is a possibility in India of utilising molasses (which is a chief by-product of sugar industry) as a binder for coal briquettes.

Q. (35) Early in 1910 some experiments in froth floatation of coal was carried out by Mr. Randall. The results were rather promising. Since then almost everybody has condemned coal washing in India as being uneconomical.

A large volume of work has however been carried out during the recent war years under a grant from the Council of Scientific and Industrial Research at the Indian School of Mines. In all cases, work has only been carried out with reference to gravity cleaning and these results only bear relation to heavy medium cleaning processes. This work has already justified itself by persuading two big firms in India to order heavy medium coal cleaning plants of a capacity of 200 tons per hour. The need for research on coal cleaning can hardly be over emphasised, specially in view of the needs of the iron and steel industry. Many of the so-called inferior grades of coal which might be perfectly suitable for burning in locomotives, and are discarded chiefly because of their high ash content, can be utilised to a large extent by having them cleaned similarly many coal seams which are coking in quality but are condemned for making blast furnace coke for their high ash content, can also be improved and up-graded by reducing their ash percentage.

Besides lowering the ash percentage it has another great benefit, which can hardly be estimated in terms of money *viz.*, supply of an uniform quality of coal for the coke ovens for the manufacture of blast furnace coke. Any coke-oven manager would testify the ease and economy which can be obtained from the supply of uniform grades of coal. Indian coal, it may be pointed out, is notorious for variation in quality both laterally and vertically in the same seam and under such conditions coal cleaning would ensure the despatch of an uniform grade of coal from any particular seam or a group of seams. This will also have a very important bearing on blending of coal for manufacture of blast furnace coke.

Further, it is often possible by washing to recover a percentage of coking coal out of a seam of non-coking coal by gravity separation methods, which would not otherwise be possible during extraction. Experiments on these lines have been carried out in South Africa and results show that sometimes even upto 20 per cent of coking coal can be recovered from a so-called non-coking seam by washing at a low specific gravity say 1.38. It must be emphasised however that the whole technique of coal cleaning is still in its infancy and great strides may be expected in the near future when a greater knowledge of surface chemistry is gained.

In view of large reserves of inferior grades of coal, it is imperative that India should initiate extensive researches on these lines. Indian coal is likely to give better results in washing with smaller sizes. Although there would be a limit to size for cleaning coal by gravity washing, it is quite likely that froth floatation methods would give much better results. This is rather interesting from the point of view of iron and steel industry, as the size of the coal needed for making blast furnace coke is generally below $\frac{1}{2}$ " mesh size and this grade of coal is particularly suitable for cleaning by froth floatation methods. No two

coals however respond to the same degree, even if they were of the same type and composition, to a particular wetting agent in the froth floatation process. It is a matter of the surface of the coal particles and it is always a question of actual experiment to discover as to which wetting agent would give the most successful result. It is therefore unwise to condemn froth floatation results only from one series of experiments, as was done by Randall with Indian coal.

Regarding the economics of coal washing, it is difficult to give an estimate under Indian conditions, but larger the plant, the greater is the economy. Under the conditions of the United Kingdom it generally costs 3 to 5 pence per ton for cleaning coal by heavy medium separation process, combined with either a Rheolevoir or Hoyalais method of cleaning for the lower sizes, below 1/8th.

It is hardly conceivable that all the sundry small collieries can possess coal cleaning plants for their individual mines and under Indian conditions it would be beneficial to have central coal cleaning plants for groups of collieries. This is also the trend in coal washing in the United Kingdom and that in United States. It may be pointed out that there is hardly any single process of coal cleaning which can efficiently handle all the size grades of coal. One would have to combine 3 processes for handling the various sizes of coal from 8" to 9". A central coal cleaning plant which is to be put up in England may consist of a heavy medium separation plant such as Chance sand floatation unit, Barvoys barytes and clay suspension unit, or a Tromph spathic iron ore suspension unit (or a magnetite suspension units as manufactured by American cymamide Co.) for sizes 8" to 3/8" (2) Rheolevoir or some such box washing unit for sizes 3/8" to 1/8" or 1/10th and (3) froth floatation unit, either of the Elmore Vacuum type or Benver through type, for 1/10" to 0".

During the recent war years cleaning by centrifugal forces in conjunction with heavy medium separation has also come into use.

There is therefore a great need for instituting researches in the laboratory and on pilot plant scale for coal washing in India and it can definitely be stated that money spent on such investigations will surely bring handsome dividends to the industry, as well as to the nation.

Q. (37) To my knowledge there are only three plants in India, *viz.*, coke ovens of the Tata Iron & Steel Co., Ltd., the Government Coke Ovens at Giridhi and the Bararee Coke Ovens near Dhanbad, where benzole is recovered as a by-product in coke manufacture. There is certainly a greater need of encouragement and perhaps compulsion in this direction. I must, however, point out that recovery of benzole alone would hardly be enough for the establishment of a by-product industry.

Tar distillation methods in India are still very poorly developed. Tube stills last as much as 16 times as Pot stills and are infinitely more accurate efficient and saving in labour. 'Counter-current washing' methods must also be introduced for refining and purifying the other by-products

of coal tar distillation. It may be noted that Low Temperature Distillation of coal would yield a liquid fuel which is highly suitable for aviation purposes and for which the aromatic type of fuels like benzole recovered during high temperature carbonisation are entirely unsuitable.

We must also recover phenols and other materials which are the raw materials for plastic industry, dyestuffs industry, etc. The Committee should review this question fully and extend their consideration not only to benzole but to recovery of all the by-products.

QUESTIONNAIRE II

Question 1.—During the war the Central Government has been exercising control over the coal industry inasmuch as the efficient production and distribution of coal were vital for the prosecution of the war. But nothing has been done so far from the point of view of the important national problem, namely the utilisation of lower grades and conservation of good quality coal resources of the country. With the end of war, the control and power of the Central Government over the coal industry should not be relaxed but re-examined with particular reference to this national problem. The Central Government should enact a legislation to vest in itself the power to regulate mines and mineral development. Coal and other mineral resources are national assets and of immense strategic value and as such they are central subjects not to be delegated to the provinces. Economic utilisation and conservation of these resources are of supreme importance to the nation as a whole and therefore constant vigilance by the Central Government should be there.

Question 2.—There should be a Department of Mines at the centre placed under a Member of H. E. the Viceroy's Executive Council. He should be assisted by scientific experts.

Question 5.—Alliance between units of coal production and consuming interests, whether through ownership or otherwise, has been an unhealthy factor in the economics of Indian coal industry. Although theoretically this should lead to a better and more complete understanding between the industry and the consumer, in the past it has often led to cut-throat competition. Some consuming interests who were at the same time owners of mines have artificially brought down the selling prices of their product in order to bring down the general price level of the market. The lowering of prices in turn led to wasteful mining methods and to reckless exploitation of the national coal resources. Where consuming interests own coal production also, the Central Govt. Department of Mines should see that such interests do not affect the economy of the industry as a whole.

Question 6.

Answer.—What has been said regarding question 5, applies to the railways.

Question 7, 8, 9 and 10.

Answer.—The defects of the Indian Coal Industry cannot be totally attributed to private owner-

ship and management. So long as we do not introduce the most modern methods of mining etc., into the industry, private ownership or state ownership makes not much difference. Private ownership and management have attained the highest degree of efficiency in U.S.A. by the employment of scientific methods in the industry. We in India could get similar results if we also devote greater attention to the scientific aspect of the problem instead of trying to decide this controversial issue: private enterprise versus state ownership.

Nationalisation of Indian Coal Industry has been suggested by some as the sovereign remedy for all the ills now prevalent in the industry. Howsoever true this suggestion be, it is one on which action has to be deferred for some time. As long as private enterprise remains there, entrepreneurs should be induced to adopt modern methods of mining and economical and non-wasteful ways of working the mines by certain baits shown to them by Government. This inducement could take the form of liberal state support to such of those industrialists who adopt the methods recommended by the Government. Nationalisation of industries in India at this stage is not very desirable for various reasons. Indian Private Enterprise is for the first time enthusiastic of developing the country's resources and this should not be quenched but on the other hand kindled by encouragement by the state. With the necessary help such as state support, a prosperous internal market and highly trained personnel, there is no reason why Indian Private Enterprise should not realise its responsibilities and succeed.

Question 11.

Answers.—It is certainly true that a large number of concerns are undercapitalised, but I cannot suggest that they should be financed by loans either on terms of payment of interest or on interest free basis, as in most of these cases management is hopelessly inefficient and investment of public funds in these concerns would mean a total loss. These small undercapitalised concerns could be made to coalesce into larger economical units.

Question 14.

Answer.—The surest way of improving the output of Indian coal-mining labour is to introduce machine-cutting and to have a stable miner class in the country.

Question 15.

Answer.—Although the system of raising contractors have tended to improve output, it has certainly resulted in unsystematic mining methods.

Question 16.

Answer.—The deficit of the six million tons between the coal requirements of the country and the present productions can only be met by increasing the supply of labour for the mines, introducing machine-cutting, opening the mines containing more inferior types of coal and by working to some extent the outcrop coal.

Question 17.

Answer.—In my opinion no voluntary Central Marketing Agency for coal would be feasible. But Government should control distribution and prices. Sales quotas cannot be fixed privately by the trade. It will be better to have several regional groupings under a Central Authority.

Question 18.

Answer.—At the moment no comprehensive regulation for using coals for different purposes can be formulated as no sound data exist on the nature of Indian coal and their suitability for various purposes. Before any such regulation is enforced, a complete physical and chemical survey of the Indian seams must be completed and experiments must be carried out on the suitability of the various types of coal for different purposes. Such a survey is in the programme of the Fuel Research Institute to be set up.

Question 19.

Answer.—Regulation of the use of coals by some of the major consumers would certainly be beneficial towards the better utilisation and conservation of Indian coal.

Question 20.

Answer.—In the event of complete regulation, the Central Marketing Agency may ensure the correct supply of coal with the help of expert advice and analytical data from the Fuel Research Station. In this connection it may be pointed out that sooner or later the Central Fuel Research Institute will have to establish sub-stations for Physical and Chemical Survey in different coal-fields and these survey stations may facilitate to ensure correct supply of coal from any colliery from their respective regions. It may be pointed out that the Fuel Research Station in England has got 9 survey stations established in separate coalfields and during the war years, the Ministry of Fuel and Power completely relied on these survey stations for the despatch and control of different qualities of coal and it can be stated that the scheme was considered to be a great success.

Question 23.

Answer.—Pooling of railway freights would not be a bad idea.

Question 29.

Answer.—Return to free competition in coal industry is certainly most undesirable. Voluntary price fixation would never work out in practice. It is hardly likely that either the colliery Owners' Association by themselves or in consultation with the consumers can cater for or have complete grasp of the needs of post-war reconstruction programmes. Only the Central Government responsible for the planning and execution of the postwar development, would be in a position to know the needs of the country.

Question 30.

Answer.—Control over prices of coal supplies to railways, Iron & Steel companies would certainly help stabilisation of prices in general. The price of coal should be based on its calorific value

and there should be a sliding scale arrangement or a system of bonus or penalty on delivery. It must also take into account the size of coal, and for several purposes, fusibility of ash and other special criteria, which can only be specified with reference to specific purposes.

Question 38.

Answer.—It is difficult to define metallurgical coal very precisely. There are several properties which are generally taken into account, viz. ash content, strength of the coke, size, the reactivity of coke, swelling index, presence of impurities e.g. sulphur, phosphorous etc. In general metallurgical coal is that coal which produces a suitable blast furnace coke with necessary cohesion to withstand the blast in the furnace and possesses a definite ash limit in relation to the nature of the ore being smelted. In India it is said that ironmasters aim at having a coke with 18 to 20 per cent of ash. This is chiefly due to the fact that most of the iron ores used in India are highly pure.

Question 43.

Answer.—The actual requirements of coking coal of the type that are being marketed today can certainly be reduced to $\frac{1}{2}$ by taking resort to blending with non-coking coal or by washing of the coal from seams which are at present regarded as unsuitable for metallurgical purposes due to their higher ash percentages.

Although some work has been started under the aegis of the Council of Scientific & Industrial Research on these lines, for example, investigations on blending at Jamshedpur and on washability at the Indian School of Mines, very little work has been done in this country in actual practice. There is therefore need for complete and thorough investigation on laboratory and on industrial scale. The Fuel Research Institute would take up such investigations.

Question 44.

Answer.—The experts of the Fuel Research Institute would be able to give advice to assure economic use of coal in iron and steel works.

Question 45.

Answer.—It is now common knowledge that at the present rate of consumption India possesses only about another 50 years reserves of metallurgical coal and unless other alternatives are discovered and put into actual practice, there is every reason to restrict the use of metallurgical coal to iron and steel industry and ensure conservation by introducing blending and washing.

Question 46.

Answer.—Yes.

Question 47.

Answer.—Production could be restricted by ensuring that only that amount of coal needed by the metallurgical industry is actually produced.

Question 48.

Answer.—There is reason to believe that iron and steel industry would expand considerably in the near future, which would partially ameliorate the difficult situation that will be faced by

some of the mines producing metallurgical coal. In some of these mines depillaring should be prohibited to restrict their output but I think the problem can only be adequately dealt with on a national basis and under Government direction.

Question 49.

Answer.—In view of the precarious situation regarding the reserves of metallurgical coal, it is certainly desirable that the State should have control over all mines producing this type of coal.

It should be pointed out that fire and collapses in seams either in the neighbourhood or below some of the metallurgical seams are causing grave losses which have hardly been taken into account when the life of the metallurgical coal reserves are estimated.

There is need of immediate steps being taken to ensure that the future industrialisation of the country may not be held up in this bottleneck.

Question 50.

Answer.—In India high grade steam coal is considered to have an ash percentage below say 12 per cent. and having free burning qualities. According to the report of the Geological Survey of India the good reserves of high grade steam coal do not amount to more than 5000 million tons of which about 1400 million tons are considered to be of coking quality.

Question 51.

Answer.—While one cannot say that there has been widespread wastage of high grade steam coal in the country, it is true that they have not always been utilised only for the best purpose. Much of these so-called high grade coals are suitable for Low Temperature Carbonisation. It is known in some cases that such coal has been used for making domestic soft coke by the open heap process without any recovery of by-products.

Question 52.

Answer.—Without having any Physical and Chemical Survey data it is difficult to restrict the use of high grade steam coal for any particular purpose and until such data are available for consideration, I do not think there should be any particular restriction about its use.

Question 53.

Answer.—There are many collieries where the most efficient and maximum extraction, in consistency with safety, has not been adopted in the past and such reckless exploitation has led to loss of large reserves of coal. I would, therefore, recommend State control and guidance in mining high grade steam coal as well.

Question 54.

Answer.—The present percentage of extraction of coal in India is about 50 per cent. There has been considerable improvement in places where stowing has been adopted, particularly in the case of thick seams.

Question 55.

Answer.—Without introduction of compulsory sand stowing, I do not think that regulations

regarding first working, section working and depillaring will be adequate for securing maximum extraction of coal.

Question 57.

Answer.—Stowing should be enforced both for safety and for conservation purposes. It should be applied in all cases and specially in the case of thick seams and when a seam being worked underlies a seam that is not being worked.

Question 58.

Answer.—The Government should acquire sand rights and should deliver sand for stowing.

Question 61.

Answer.—Efficiency and economy can certainly be obtained by using pulverized coal and colloidal fuel. I think the most economic way of using the inferior grades of coal is to use them in pulverized state. Colloidal fuel i.e. coal dust in suspension in oil, certainly presents greater advantages than either fuel or oil as such. As far as I am aware there has been no development in these in India.

Before any action is taken, experimental work must be carried out in the use of Indian coal in pulverised form. Researches therefore should be undertaken at an early date for this purpose.

The Government should consider the use of pulverised fuel, in conjunction with the use of inferior grade fuels for large central power stations that may be built in the country. Either, the unit type or the bin and feeder type of plant may be adopted but in my opinion the unit type has certain advantages. A large power station at Krkstatt near Leeds uses pulverized fuel and a high degree of efficiency is obtained. Coals far inferior than anything that is used in any other power station in the United Kingdom is used in the station.

Regarding colloidal fuel it may be stated that until recovery of oil from coal tar is started, there is hardly any chance of success in adopting this type of fuel in India, as the best medium of suspension of coal dust is coal tar oil. The coal required for this purpose should be of as low ash content as possible.

Question 62.

Answer.—I think establishment of Central Power Station in the coalfields for supplying electricity to Calcutta and electrification of the rail roads converging on Calcutta would certainly effect a very great economy in transportation of coal and contribute to the utilisation of inferior grade fuels, thus conserving high grade steam coal.

Question 63.

Answer.—We should decidedly stop the present method of producing soft coke and adopt Low Temperature Carbonisation in conjunction with by-product recovery. But before this can be done there must be a thorough laboratory survey in order to find out the suitable coals for this process of carbonisation and also to carry out full-scale experiments to determine the nature

and yield of the solid, liquid and gaseous products. The programme of research should occupy a very high place in the programme of the proposed Fuel Research Institute.

Question 64.

Answer.—There is certainly a very special case for developing the coal tar industry in India. Coal tar products are raw materials for many heavy and fine chemical industries. This has been dealt with by various people at length and there is hardly any need for reiteration. This is especially necessary in connection with the development of plastics, dye-stuffs, synthetic-rubber and allied industries, for the manufacture of germicides, insecticides and a great number of medical preparations. Development of coal tar industry will also help to a great extent in making the coal industry profitable and prosperous. One may state that the most uneconomical use of coal is to burn it.

On the Coal tar industry depends the power of the country to wage war or achieve prosperity in peace.

Question 72.

Answer.—The coal resources of C.P. are still rather vaguely known. Even recently two new seams (one 7 ft. and another 11 ft. in thickness) have been discovered near Nagpur city. These seams were not even suspected in the pre-war years. Very little deep boring has been done in connection with our coalfield survey. Although the C.P. seams may not prove to be of very high grade, they would certainly augment country's reserves of fuel resources. There is also the case of recent discovery of a fairly large deposit of lignite in South Arcot near Madras.

Use of deep boring should be encouraged for prospecting of the coalfields, particularly in the Central Provinces.

Question 73.

Answer.—I think it is unwise and very often wasteful to have a number of cesses for different objects and the alternative is to have single cess on coal and then to distribute the levy for various purposes, e.g. labour welfare work; research, stowing etc. according to needs. Subsidies, however, should not be met of this Central Fund.

Question 74.

Answer.—I certainly think that a single body, exercising the functions of various committees and trades now functioning will be more advantageous. The existence of separate committees tend to lead to confusion regarding general policies. Policies of these organisations have very often been directly or indirectly contradictory. Further, any such single body should have enough technical representation on it and the executive authority should consist of paid wholtime personnel. The industry, technical and research organisations, Mines and Stowing Departments, Labour Department and Finance Department should be invited to send their representatives to this Central Coal Commission or authority.

100. WRITTEN EVIDENCE OF MR. SANTOSH KUMAR BOSE, MINING ENGINEER, KATRASGARH P.O. (MANBHUM).

QUESTIONNAIRE No. I

I

Question 1.—Yes, the conditions mentioned in the question still prevail.

Actions taken by Government as detailed in the question have certainly proved to be benefited and have resulted in achieving improvements but have not been quite adequate. Hence further action is required.

II

Question 2.—No, Coal Expert is not necessary and should be stopped in the interest of development of Inland National Industries.

Question 3.—It improved the quality of the exported material and re-established the confidence in foreign markets and Indian ports through shipment of only better graded coal.

Question 4.—Indian coal during the 5 years preceding the War was cheaper in Indian ports than other competing coals.

Question 7.—In my opinion, regarding the coal should be done for the seams as a whole and also for the sections of seams, so that during development or first working time only the best section of the seam can be worked which will bring better values to the Industry and will also result in the use of the better portion of the coal for the purpose best suited. During depillaring, however, the Industry should be forced to work the seam as a whole so that no National Wealth is lost or wasted.

Question 8.—Yes. It should be made compulsory.

IV

Question 13.—No. All the railway facilities now existing are inadequate and should be augmented.

Question 14.—

Question 15.—No.

The present method of allotment of wagons seems to be more satisfactory.

Question 16.—Private Weigh-bridges have been installed at a very small percentage of Collieries.

The rebate was in my opinion withdrawn out of considerations of financial loss to the railways.

Yes, special encouragement is necessary at the time of installation and during the period the bridge is in use.

Question 18.—Siding accommodation is unsatisfactory in respect of adequacy as well as distance from the Collieries.

Question 19.—Yes, there are many complaints, specially in the rainy season for two frequent

overloading and underloading because too small a margin, specially for open wagons. In my opinion the margin should be increased for open wagons.

Question 20.—Mechanical loading Appliances have not been used extensively in India. Many of the big mines, however, do use them.

Loading of covered wagons by Mechanical loading Appliances has not been adopted to any extent in Indian mines but there are such appliances which could be used with advantage.

Question 22.—The introduction of seasonal rates may be tried but the advantages expected to be derived from such system are doubtful in as much as it will mean stocking for the Producers during the dry season, raisings being much less in the wet season. This will result in higher cost for the Producers.

V

Question 24.—Mechanical Coal Cutters have replaced manual coal cutting to a very small extent.

The running cost of production certainly goes down by the use of Mechanical Coal Cutters through higher raisings but when the initial cost of installation of Mechanical Coal Cutters is taken into consideration, the cost of production definitely goes higher. Except in a very limited few cases the Mechanical Coal Cutters are not used to their full capacity. Short wall method of working and steeper gradient of Indian seams have been the main obstacles.

A general development in favour of mechanisation is not possible with much advantage although it may be desirable in (a) old fields in this country. In (b) new fields where the gradients are much lesser it is certainly desirable and possible with advantages.

Question 25.—Mines are now being developed to a much greater extent with rails extended right upto the working faces and the experience gained through this shows certainly a saving in the raising cost.

VII

Question 31.—Operations of the Coal Mines Stowing Board have certainly proved advantageous but the measure of success achieved has been limited.

Main obstacles encountered are limited resources in respect of stowing materials and transportation facilities.

If the obstacles are removed, voluntary stowing will increase rapidly to a great extent.

VIII

Question 34.—Need for briquetting is to save the huge amount of waste through rejected materials which have a considerable amount of Calorific value. If these materials could be briquetted could be used with advantage and will mean recovery of national wealth at present wasted. The possibility of commercial development of briquetting cannot be estimated at present as this is still in the research stage.

Question 35.—Coal washing is beneficial to the Steel Industry as this reduces the ash in coke which is injurious to the Steel. This is also beneficial to the other consumers more ash in coal means lesser calories obtained from the coal used. Coal washing however has been practiced to practically no notable extent.

Question 36.—

Question 38.—The existing facilities for Rescuing arrangements are not adequate and should be implemented to a much greater extent.

Question 39.—Present educational facilities in the coalfields consist of (a) The Indian School of Mines, Dhanbad. (b) Three Evening Classes for preparing Managers at Sijua, Bhaga and Sitarampur managed by the Local Governments. (c) Lecture classes for Mining Sirdars at 5 centres issuing 10 lectures for the course in the year.

There are not private educational facilities. Educational facilities must be extended substantially for all classes, employed in the Industry viz. Officers, Supervising staff and labour. The present facilities are entirely too meagre to be worthy of note and following steps should be taken :—

- (a) Facilities should be given by Government to all Universities for opening up Mining and Geological courses leading upto the Degree Standard in as many Colleges as possible under the Universities.
- (b) Evening Mining lecture classes should be started at many more centres, so that workers of Collieries will not have to go long distance to attend these classes. Employers should also encourage the workers to attend these classes and those who come out successful from these classes should be provided with better remunerative jobs.
- (c) Short lecture classes should also be opened for the different trades of the industry viz. Fitters, Electricians, Line Mistries, Propping Mistries, Stonecutters and Roof dressers, even Miners etc.
- (d) Education by slides, posters and general exhibitions regarding safety and usual causes of accidents and their prevention may also be given.

Question 40.—To induce the present migratory Miners who come a settled Mining community the following steps should be taken :—

- (a) Their earnings must be increased radically and must be substantially more than that of the Hazree labourers.
- (b) The coal cutting work can be kept as at present on contract basis but a good minimum daily earning must be fixed.
- (c) Their housing accommodation should be substantially improved and made at least the same as that of the Hazree labourers which is not the case at present.
- (d) Their women folk must be given preference in employment at the surface.

- (e) Allotment of houses should be made more on commubly lines.
- (f) Housing arrangements should be more in village fashion which will be more natural and homely to the miners.
- (g) Bengal Coal Co. used to lease out surface lands to the miners for cultivation. This was, I think, quite a good practice to keep the labour in the Colliery. The same practice may be tried by other Companies also.
- (h) The attendance bonus may be continued to be paid to miners at least on attendance.
- (i) Solving fragmentation of Collieries may help to stabilise the migratory miners.
- (j) Mechanised coal cutting will also help to stabilise the migratory miners. At present the backward communities viz. the primitive and untouchable classes mostly have been left with the profession of coal cutting whereas the more intelligent and higher classes of communities have managed to find hazree jobs which are much less arduous and have much more stable and higher remuneration.

If conditions could be made less arduous and more stable and more remunerative miners will naturally be tempted to settle themselves in the Collieries to a greater extent.

I would like to stress here that Coalfields labour in general are not migratory but the Miners alone are migratory, the hazree labour usually being more settled.

QUESTIONNAIRE No. II.

I (CONSTITUTIONAL)

Question 1.—Division of responsibility between the Central and Provincial Governments is not satisfactory. Yes, the Central Government should now enact Legislation for powers for full control of Mines, production distribution etc.

Division of powers between Central and Provincial Governments is not desirable.

Question 2.—Yes, there should be a separate department for coal Industry.

Yes, a department should be created under an Executive Member to deal with all minerals & mines including coal.

II (ECONOMICS)

Question 3.—The present structural organisation of the Industry is not satisfactory.

Coal is a national wealth and it should be owned by the Nation. Coal mines should be operated for the production of coal by the Government on behalf of the Nation in the best interest of the Nation.

Managing Agents are interested in highest profits in short term lease periods. As such there is bound to be some waste of the mineral for quick working of the property within the lease period. Managing Agents are not interested in conserva-

tion of metallurgical and steam coal in national interest. Managing Agents would produce whatever coal is readily available and easily produceable and would market them even for purposes other than the ones best suited to the particular coal. These are definitely against national interests. Inferior seams of coal which have poor market at present would be abandoned and superior coal seams will be worked below the inferior seams to give them ready profit, completely wasting vast amount of national wealth.

Managing Agents are also consumers of coal for other industries under them and like railways & Steel and other industries owning Collieries are to that extent both Producer and Consumer. These being powerful industrial concerns control the price of coal to a large extent and thereby they do not pay enough interest for safety and efficient working of the property. Low prices of coal mean less Revenue to the nation. Hence the present structural organisation of the industry should be abolished altogether. And Coal Industry should be completely nationalised.

Question 4.—Already dealt with in the above paragraph.

Question 5.—No. Producers should not be consumers. This is to the detriment of the prices and wages.

Question 6.—Indian Government Railways, owning and operating their own Collieries have controlled market prices of coal to the detriment of the interests of other private owners of Collieries. If coal industry is nationalised, however, although Government will be both consumer & producer, there will be no question of the detriment of private interest and prices can be controlled by Government in the best interest of the nation.

Question 7.—Yes, private ownership of mineral rights and uncontrolled grant of leases lead to working of the mineral in a most inefficient manner, especially in cases of short term leases as the lessees are only concerned with their highest profit in the shortest time without any regard to safety of property or efficiency. Private owners usually do not care to keep proper checks to see if the mineral is being worked efficiently or not or if the method of working involves heavy losses of the mineral. Moreover if lessees or owners mining the mineral themselves are small parties with poor capital, they will naturally try to work the mineral out with as little investment of capital as possible and this will mean less use of necessary machinery and other requisites leading to heavy losses of mineral.

Question 8.—If acquiring of mineral rights by the Government is not possible immediately, the next best procedure would be in my opinion, administration of the mineral properties by the state on behalf of the owners with the National Interest kept in view above everything else.

Question 9.—Government should enact legislation for full control over the powers of leasing by the private owners, if the preceding two proposals can not be effected.

Question 10.—I stand for State ownership and operation throughout of the coal and the mines.

Question 11.—Yes, it is true that a large number of concerns, particularly the Indian Section, are under capitalised, complete nationalisation of the Industry is the best ameliorative action. Next to this, however, the method of merging several small concerns into larger bodies by legislation may be suggested. Also, as another alternative, Government can work out a system of establishing Banking institutions to advance capital to small concerns under terms of certain checks over the workings.

Question 12.—Yes, there are some cases of over-capitalisation such as in the cases of railway and steel companies Collieries. These, though over capitalisation are able to control prices to such an extent as to have unfavourable effect on the industry. Nationalisation is the principle remedy. Short of this, the Government should control the prices of coal.

Question 13.—Cost details are not available. An approximate estimate of proportion of labour cost to the total pit-head cost is about 25 percent. to 30 percent.

Question 14.—Suggestions for improving the output of coal mining labour are :—

- (a) Higher- remuneration.
- (b) Issue of better nourishing food through canteens or co-operative stores.
- (c) Education of labour towards their sense of responsibilities.
- (d) Better mining methods giving better ventilated working faces, better laid tracks upto faces, better rolling stocks and better hauling and transportation facilities, minimising much tub-pushing, better pit-top and pit-bottom arrangements leading to lesser detention of tubs, better mine drainage system leading to dry working faces. Quicker unloading arrangements at pit-top, better underground lighting etc.
- (e) Better methods of coal getting through mechanised means making the coal-cutting work less arduous.
- (f) Provision of drinking water supply underground at convenient centres.

Question 15.—The system of coal raising contractors tends to improve output.

No. The system has not resulted in unsystematic mining methods.

Question 16.—Deficit a production can be made up by

- (a) Opening up New fields.
- (b) Affording better facilities of siding, transportation and haulages and other

required machineries. etc to existing mines which are suffering from these wants at present.

- (c) Introduction of mechanised mining to a larger extent.
- (d) Improving the working conditions as mentioned in answer to Question 14.
- (e) Steps towards improvements of output per head.
- (f) Control by State over distribution and prices of coal.

Question 18.—Yes, there is a case for complete regulation of the use of different coal for different purposes. All Indian Coal seams should first be re-analysed section by section as well as for the whole seam and then the present system of regulation may be carried on.

Question 19.—I favour complete regulation of the use of coals.

Question 20.—The State should ensure that the coal is despatched by a Colliery.

Question 24.—Freight of coal should vary directly as the quality of the coal.

Question 26.—Reduced freight rates should not be charged for train loads of coal consigned to one consumer.

Question 28.—I favour a common pool of wagons of E. I. R. and B. N. R. operated by a central body.

Question 29.—I do not favour free competition in prices.

No, a system of fixed prices worked out on voluntary basis by the Trade, in my opinion, is not feasible.

Yes, State should fix the prices after a reanalysis of all coals.

Question 30.—Prices should be controlled for all coals for all consumers and not for Railways and Steel Coy's only.

Question 38.—Metallurgical coal is coal of low ash, low volatiles, high carbon proportions and high calorific value. This will readily form into hard coke of fine porous texture of steel grey colour having high crushing strength.

Some of Jharia Coalfield seams some of Raniganj Coal-field seams, Giridih and Bokharo seams are good metallurgical coal. The total metallurgical coal reserves of India, so far known, will last for a little over 50 years at the rate of present consumption.

Question 45.—Yes, the reserve of metallurgical coal is very much limited and there is vast resources of iron ore in India. We have many countries yet ahead of us to develop our Steel Industry and the countries requirements of steel

would be expanding enormously. As such use of met. coal for met. purposes only must immediately be restricted.

Question 46.—Already answered in above paragraph.

Question 47.—If by nationalisation the responsibility of distribution goes over to the State, the State should see that met. coal is sent by Collieries only to Steel factories or Coke-ovens feeding the steel factories.

Question 48.—If nationalisation of the industry can be effected there will be no question of compensating shut-down or restricted Collieries. Short of nationalisation, however, the State should compensate such Collieries in national interest.

Question 49.—The State should own and operate all met. coal. By this Government will not have to pay to the lessees and royalty owners of shut-down and restricted Collieries compensation which will include their profits.

Question 50.—Steam coal is coal with low volatile, low ash, high carbon and high calorific values. These do not coke easily Jharia, Raniganj, Giridih, Bokharo, C. P. and C. I. Coalfields have got good steam coal seams. The total reserve is expected to last over 100 years at the rate of present consumption.

Question 51.—Yes, there has been a wasteful use of high grade steam coal. High grades steam coal should be restricted for use only for generating high pressure or superheated steam in railway locomotives, Big Powerhouse Boilers and other places using such steam.

Question 52.—A case for restriction does exist. Restriction suggested will be same as in the case Met. coal.

Question 53.—Yes, a case really exists for adopting a similar policy as in the case of Met. coal.

Question 54.—The present percentage of extraction of coal is from 60 to 70. Yes, there has been some improvements in this matter in recent years. The reasons for such improvements are (a) introduction and enforcement of the new regulations and rules, (b) stricter and more vigilant inspection by the Mines Dept., (c) introduction of Stowing to a larger extent, (d) stricter precautions and measures taken by Mines Owners and Mines Officials due to the outbreak of some big fires in some mines entailing heavy losses.

Question 55.—Yes, they are adequate.

Question 56.—Yes, rotation of working must be controlled and the control should be effected by developing the top seam first, developing the bottom seam and depillaring the top seam next and so on. The control would involve in certain cases prevention by legislation of depillaring in the bottom seam before the top seam has been depillared and even if this involves paying compensation to the mine or royalty owner this should be faced in

national interest. Nationalisation of the industry however would do away with the question of compensation.

Question 57.—Stowing should be enforced also for conservation of metallurgical and high grade steam coal.

Assistance should be given for such stowing to the extent of the cost of stowing minus the mine owners' profit for getting the coal.

Question 58.—Yes, Government should undertake the work of delivering sand for stowing and as such it will be necessary for them to acquire sand rights.

Reasons :—(a) Small concerns have no capital install aerial rope-ways for transportation of sand.

(b) Sand of course could be purchased from other concerns but this will depend on the whim of the supplier and will involve high cost to give profit to the supplier.

(c) Transportation of sand by railways and other means of transport is very limited and costly and inconvenient.

(d) The State will have a moral obligation for the supply of sand in order to enforce stowing.

These propositions will not interfere much with existing arrangements are taken over by the State.

Question 59.—The lessors should be made to share in the cost of stowing as he is profitted by the stowing in getting more royalties.

Question 60.—Difficulties are sometimes experienced in getting permission especially for extracting coal under railway main lines and Grand Trunk Road.

Question 61.—There has been no development in India in the use of Pulv. Coal. Yes, action should be taken by the Fuel Research Station to determine the advantages to be gained by its use.

Question 62.—I am generally in favour of installations of more power stations in the Coalfields areas and transmitting power to consuming centres as was envisaged by the Bihar Government Electrification Scheme.

Question 66.—The effect of such omission has been that the lessees have worked the shallower portion of the seams by Inclines or shallow shafts and depillared these portions without leaving sufficient roads in such for the development of the deeper portions in future. This has necessitated the sinking of fresh shafts for development and working of the deeper portion involving unnecessarily heavy expenditure. If in the term of the lease such provisions of in-stroke and cut-stroke workings were made these unnecessary expenditure could be avoided. Sometimes omissions of such provisions has resulted in the total abandonment of the balance area.

Question 68.—Yes, the Government should fix royalty and regulate salami.

Question 69.—A Colliery holding in uneconomic when it is so small and so badly shaped as to render the workings too costly and too difficult to justify investment of large sums. They comprise both direct leases and sub-leases, the latter being perhaps greater in number. Small capital of the lessors as well as the greed of the royalty owners for quick and higher royalty have been responsible for this fragmentation.

Question 70.—Yes, Fragmentation is undesirable due to

- (a) heavy losses involved in barriers;
- (b) unsafe and inefficient workings leading to fires and inundation;
- (c) the existence of faults near barriers which will cause difficulties for the proper method of mining near such faulted area and which may result in the abandonment of small strips of land, working of which will not justify heavy expenditures in driving through faults;
- (d) the fact that it leads to bad shape of some holding, which increases the difficulties of working and loss of coal.

Question 71.—Yes. In future such legislation should be enacted.

Problem of fragmentation can be solved by the State-ownership of mineral rights and subsequent amalgamation of leases.

Short of above, the next method suggested may also be tried and failing in this also legislation should be enacted.

The principle governing the above is prevention of the losses of the national wealth.

Question 73.—It has already been suggested that a separate department should be established under the Executive Member. This department may be made responsible in collecting all the Cesses as combined into one—"COAL CESS" and will distribute the funds to the different bodies according to their needs.

Questions 74 and 75.—All the present Boards and Committees should be amalgamated into one single body under the coal Department.

101. WRITTEN EVIDENCE OF MR. SHIVAX C. CAMBATA OF SHIVAX C. CAMBATA & Co., LTD., COMBATA BUILDING, CALCUTTA.

QUESTIONNAIRE No. 1

GENERAL

Question 1. A.—The conditions as gathered from the impression of the two committees do not prevail at the present time. There has certainly

been some marked improvements as regards the various points referred to in this question.

(b) The increased powers invested in the Mines Department and Coal Mines Stowing Board have certainly given satisfactory results.

(c) We do not think that the introduction of a Statutory Authority would have produced better results.

II. GRADING AND EXPORTS

Question 7.—It is agreed that regrading of coal seams has become necessary. The grading should be confined to seams as a whole.

Question 8.—The grading of coal for internal markets is desirable but should remain discretionary.

IV. RAILWAY FACILITIES

13. It seems evident that there is an insufficiency of rolling stock at the present time. To improve matters we would suggest reorganisation in the movement of railway traffic etc.

15. It is regarded that the method of allotment in force in 1940 was satisfactory.

19. There are no complaints.

V. RAISING COST

- 24. (a) Mechanical coal-cutters have replaced manual coal cutting to a very negligible extent.
- (b) Generally a reduction in cost is brought about.

(c) It has not been possible to utilise coal-cutters to their full capacity as machines were not obtainable during the War. Another obstacle was the inadequate supply of motive power and a general lack of initiative.

(d) Mechanisation is both desirable and possible in both old and new coal fields.

25. As far as it has been possible with the materials at the disposal of the collieries during the war this has been the system in vogue and it is certainly an advantage.

VI. RAILWAY COAL REQUIREMENTS

26 to 30.—We have no knowledge of this.

VIII. MISCELLANEOUS

38. There are no arrangements whatsoever in the C. P. Coalfield for rescue work.

39. In the Central Provinces there are no educational facilities for Mining Education either State or private. In our opinion a Centre should be set up for the education of Mining students in Central Provinces, easily accessible to students in

any walk of life as regards, fees, tuition fees, etc. and adequately staffed by experienced and competent personnel. The school should function on a basis which permits the entry of students with practical experience and elementary education who desire to equip themselves with the necessary certificates of competency under the Indian Mines Act. The entrance to the School should not be restricted to Matriculates and Inter Science students but should be open to all practical mining students. The present system of Mining Education as run by the Government insisting on a condition of entrance, namely, the possession of a Degree and an age limit debar the ordinary man and non-degree holders from pursuing any course of Mining Education. We would call the Committee's attention to the system of Mining Education which has been functioning in Great Britain over a number of years and producing some of our best mining engineers.

40. Government should remove the onus of housing, supplying of grain, and supplying of water to its labour from the colliery companies and should either consider it as a Government or Municipal responsibility. This may be done by setting up of a model village with shops, electricity and proper supply of water thus giving the labour a sense of freedom from their employers. The contracting system should be abolished and all colliery labour should receive their payments individually from the company's office. This would result in the non-exploitation of labour by the Contractors and thus give them the freedom to work at whatever colliery they choose and in what ever capacity they desire to do so. The result would be an improved standard of living and a greater inducement for labour to settle down as a mining community. Government should establish a recruiting office at convenient centres and supply labour to coalfields as required by each colliery. Fees should be charged while complying with requests of this kind.

QUESTIONNAIRE No. 2

I. CONSTITUTIONAL

1. We would suggest that a Ministry of Mines be set up within the Central Government and a subordinate ministry be set up in each province directly responsible to the Central Ministry who should decide all matters.

2. The Mines Ministry should be created under a member of His Excellency the Governor General of India's Executive Council to deal with the Mining Industry.

II. ECONOMICS OF THE COAL INDUSTRY

Structural Organisation of the Industry.

3, 4, 5, and 6

Ownership and Management.

7, 8, 9 and 10.....

Finance.

11 and 12.....

Production.

15 No. 15 (b) To a certain extent.

16. This could be done by a general prospecting of the country's coal resources, by the Government and the encouragement to private enterprise to open up new coal fields.

V. CONSERVATION GENERALLY

55. Yes.

61. Not to our knowledge but we consider that experiments should be taken up by the fuel research department.

62. This should be considered in the C. P. for the purpose of electrifying the coalfield. At the present the collieries in this field are consuming large amount of coal for steam power plants which are far from economical.

VII. OPENING OF NEW COALFIELDS

72. There is an abundance of untapped deposits of coal in the country. Information can easily be obtained from the Government Geological Survey Department.

VIII. ADMINISTRATIVE MEASURES

75. Yes.

102. Written Evidence of Mr. K. M. Chatterjee, Mining Engineer, Jotejaneki Khas Colliery, P.O. Toposi (Dis. Burdwan)

QUESTIONNAIRE I

General. 1(a) Yes, with the experience gained and difficulties encountered it is found that ample improvement has long been overdue in respect of the recommendations made by the above Committees.

(b) Actions taken by Mines Department and Stowing Board are a first step in the direction but are far from being adequate. Further action not only through those departments but through a competent and well representative Coal Control Board (not of the present form) is necessary. The Coal Control Board would best and properly serve the purpose of a statutory Authority.

Further action required :

(1) By controlling the price of Coal to a remunerative figure for the working of all grades of coal. Costs are practically the same in all the Collieries as also the Cessess and Government Taxes—Variable items being used of safety lamps and fans in gassy mines and the extra cost of working deep pits and under special conditions. A common margin of profit for all undertakings irrespective of quality of coal is necessary for the proper functioning of the recommendations. That the price of coal will go a great way in solving many of the above problems which all lead ultimately to conservation of Coal. It has been the common knowledge that the ruinous price-regulating policy of the Railway Board the Chief Consumer of Indian Coal has been the cause for all the ills and loss of valuable mines by fires, inundation etc. in India. Small mines working inferior classes of coal with such an unremunerative price attempted to balance their budget of coal raising and coal selling costs by mining easily got coal, i.e., by dressing pillars, hightening galleries by cutting roof

and floorcast etc. etc., the inevitable result of which was premature collapses and subsequent fires in seams liable to spontaneous combustion and inundation of many mines. Bigger firms with limited liabilities did not also escape the reactions of the above price-cutting policy and discharged their responsibility towards the share-holders by selecting and working the best seam in respective properties fetching the highest value per ton in utter disregard of the other only a little less valuable seams proving unremunerative for work by those firms as a result of the working and depillaring of the best bottom seam others seams were crushed by subsidences and lost for ever being won. In certain cases more intelligent Managing Agents of these firms fragmented and sub-leased these seams to small mine owners for working. That a remunerative price alone can solve all the problems tackled by the two committee without increasing the powers to Government Departments concerned is proved by the fact that only by two years' remunerative prices of coal Mine Owners, big and small have of themselves concentrated their attention not only to avoid previous wasteful methods of working but also have taken recourse to method which would prolong the lives of the mines and thus conserved the coal. Big firms also have already taken to (wherever still available) working those seams previously left out and damaged while the small firms are approaching the stowing board for assistance in packing of difficult and dangerous parts of their mines. Just as a person with all medical and sanitary aid and assistance cannot improve in health unless he has the requisite food necessary for building the body so a mine cannot develop and grow on the lines recommended by the Committees unless it has necessary working margin to give effect to them—the Government Departments alike the medical and sanitary attendants only stand as witnesses to the slow starving and gradual death of the industry and are equally helpless to contribute to the effect desired.

(b) By drawing up a list of the amount and classes and grades of coal necessary for the internal consumption of the country i.e., the amount of Metallurgical coal necessary—

the amount of Selected Steam Coal necessary—
the amount of No. 1 Grade steam Coal necessary—
the amount of No. 2 Grade steam Coal necessary—
the amount of No. 3 Grade steam Coal necessary—

and so on and of the output in Tonnage of such coals as mined today. No scrutiny is then necessary to know where the trade stands. It will then be possible to device means for increased output of the required grade of coal and for effecting economy in use by scientific methods. Without this the coal Grading Board, as already declared was and is a failure. The efforts of the Coal Control Board under the Coal Commissioner with so many Mining engineers in it whose valuable services were turned and used as those of glorified clerks were misdirected and proved equally futile to solve any of the problems

concerning coal and to contribute any good to this basic industry of the country in as much as they concentrated their energy on drawing up lists of daily number of wagons in hand and daily indents received and distribute as ordered by superiors. So long as selected coal is allowed to be despatched to brick making and inferior classes of coal is burnt in locomotives for creating the possible complaints and to waste energy, money and paper over them all other actions taken by Government Departments have not only repurcussive effects but will be as misleading to the Government and the public as they will damage permanently this national wealth of the country. It is then that we know where we stand, i.e., what class of coal we should regulate mining and what class to be explored and opened up. Every class of coal have thus an use for the country and the necessity of conserving same is then and only then impressed upon the mine owners.

(c) By immediately closing down all quarries which may be reserved for emergencies such as war etc. or when extremely necessary to ballance the internal consumption impossible to be redressed by all other methods. The easy working in quarries where men and women are allowed to work together directly influences and hampers the working of deeper seams by engaging the miners who could otherwise be available for working in those pits. On the contrary the present Coal Control Board instead of issuing licenses and encouraging opening up of new mines with 2nd class coal which would indirectly help conserve better classes of coal by drawing some of their miners and directly contribute to the total output of coal of the grade necessary for the internal consumption of the country, have formulated legislation for heavy penalties against such honest attempts. With the country's interest at heart such methods of opening 2nd class mines should not only be welcomed but be given immediate effect to.

(d) By enforcing compulsory stowing in all mines with due assistance not included in coal price. Such assistance may be raised by increasing the present duty. Compulsory stowing will immediately stop subsidences thus controlling loss of and making available many cultivating lands so necessary in these days of food shortage. This will also improve safety to lives in mines eliminate fires and inundations, increasing the workable percentage of coal and greatly reducing loss of coal left in barriers between pannels of big mines and between boundaries of small properties. This will also reduce the strain on the Inspectorates, avoid further increase in powers for Government Departments for controlling all methods of extraction, depillaring rotation and isolation of workings, dimensions and positions of barriers of extinguishing and circumscribing fires and treatment of abandoned mines. Section working as at present enforced by Government without stowing has been no safety but has been a proved source of fire in the mines. To crown all compulsory stowing would relieve the formation of unnecessary coal Committee

or other Statutory authorities which have received so much attention of the Government and have caused so much loss of public revenue without the desired effect. If stowing is such an important item why not concentrate all energies on this item alone as other items recommended by previous committees will follow in consequence?

(e) By improving working conditions underground, i.e., by improved lighting arrangements, mechanical and timely supply of empties to the faces of work, introducing free footwear, work dresses and head cover for worker, by better ventilation and treatment of gases and dust and by providing increased supervision and attendants etc. etc.

(f) By having a contented labour force and well paid staff so as to minimise the tendency to make up earnings by robbing pillars. And by re-introducing woman underground thus having a sufficient labour force for the owner to avoid attempts at improving output by encouraging to mine easily-got coal and for the minor to do the actual crime in order to avoid necessary labour and to spend as little time underground as possible share with his male partner (the loader) his daily income and to come up earlier and join his family on the surface.

(g) By closing down all liquor shops except on Sundays or on the weekly holiday so as to reduce the inefficiency as also absenteeism and a desire to avoid work and to allow the miner to live in a same state while on surface, to think of better living and to attend to family necessities. Malaria and other diseases contract liquor shops may thus be minimised.

(h) By having tanks re-excavated or sunk instead of bath taps to encourage swimming boating fishing at leisure hours and also by providing means for gardening and outdoor games and by developing the habit of keeping milk cows by every family with supply of necessary fodder.

(i) By opening Co-operative Banks and stores so as not to subject the worker to undue extortion at the hands of money lenders and shopkeepers

(j) By introducing rural uplift at their village houses by helping thatching, supplying drinking water through wells, arranging vaccination inoculations medical and Sanitation attendance etc. there. This will reduce not only a good deal of absenteeism for suffering from diseases but also their necessities and inclination for constantly visiting home to attend to and arrange for all these. This will also avoid epidemics at the Collieries as labour will be protected at home before departure. Unfortunately for India such permanent and nation building and all pervading scheme are never given necessary consideration while make-shift business which is more of show than has substance and has more ready attractions for passive public receive the best attention. Nothing can be more sad than the fact that the vast sums of money collected for the purpose of Coal Mines' Labour Welfare Scheme are soon going to be spent not for any permanent good of the community or in other

words the country but will be utilised to meet the whim and caprices of certain so-called experts. As a case in point I may mention the following:—

1. The Welfare Board has introduced legislation for provision of bath taps at the Collieries for labour and are granting monetary help out of the fund on a certain basis. Mine labourers need a bath a complete one in a tropical climate like this immediately on coming out of the mines irrespective of baths during other periods of the day. Mines legislation has fixed relays of work. Are the baths provided sufficient for one set of labourer of one relay within one hour of their coming out in addition to other participating in their daily ordinary baths under those taps. If not, why the show in the name of welfare?

Some collieries have no water others for certain months of the year. No alternative has been provided for them. What about the washing of their clothes which are equally necessary?

Collieries have limited lives—some very few years to complete. The monetary help has therefore very limited use. On the contrary, if tanks were excavated or re-excavated where existing and were duly provided with a separate ghats for men and women and with arrangements for sanitary disinfection and cleaning an effective and useful expenditure of money and permanent provision would have been made. The tanks should have prevailed irrespective of Collieries' life. Sanitary attention could limit the growth of larvae of Malaria in otherwise silted tanks which is reducing efficiency among miners and workers.

Men and women could have a full dip, could take to swimming, and fishes could be cultured for consumption for colliery labour and villagers in the locality could also take advantage of such sanitary tanks reducing infection and chances of epidemics, not only in the colliery but also in the locality. Even in colder countries men and women rush to open baths on a sun-shine day. It is not known why people in a tropical country perspiring all the while during work should be taken to a closed tap-bath and be deprived of a full wash of the body and clothes which is not only possible in tanks and is also necessary from the point of health.

The women community just thrown out of employment from underground might find work in such excavations of tanks and thus two birds could be killed with one stone, such excavation have been of late been opened by Mr. Butrows the present Governor of Bengal in Bankura to allviate distress by providing work amongst famine stricken people. India Government should do well to copy this.

Let the Indian Coal Committee say in which of the above ways national interest is best served.

2. A model town is projected for housing a number of labourers. Towns there are man and the diseases associated with a congregated life are too well known to be repeated. Coal fields are moving with the extraction and exhaustion

of coal and will prove as distant from these model towns after some years as the village home of a miner is now. Why then this huge expenses for only a limited number of labour? How many years will take to provide all mining labour with such model towns? Why should some suffer discrimination and others enjoy?

If instead the mining labour in their village homes are provided with thatching materials where necessary, with grouped medical and sanitary attendance with drinking water by the sinking of wells where so required and with timely compulsory vaccination and inoculation the miner is content in his healthy village home and atmosphere to come to daily work in Lorries and Buses or to spend certain months of the year on collieries. He does not go home to contract disease but revitalize himself with a month's rest. Such work would be a national work and if extended also to mills and factory labourers will turn villages into heal their conditions and will bring about great rural uplift of which we talk so big but do so little.

2. *II. Grading and Exports.* If coal in India is already short, if resources are limited export of metallurgical coal is out of question. If on meeting the internal consumption of the country surplus coal is available for export, then by arranging to wash the coals at the bunkering depots etc. we can push sale of other grades of coal

3. The certificate of grade and loading carried some guarantee of the Government and helped trade in this direction. Beyond that the Grading Board had no use. So long as best Indian coals were selected and ear-marked for export the Board had practically nothing to do. The extra supervision for loading and sizing could be arranged by collieries themselves as were done in many cases. If the Board could help market other coals by washing and other treatment then such a Board could serve its purpose well and prove its usefulness to the trade and the country.

4. _____

5. Instead of monetary help the preparations of coal for export at the docks by Government installation of coal washing plants (which will reduce the necessity of such a plant at every colliery would be adequate and as water is easily available and work is concentrated, the cost will be greatly reduced.

6. Railways may be referred to—

7. Sectional grading combined with sectional working in rotation with compulsory stowing and thereby not losing any coal at any period of working would produce the right type of coal to be used for the right work. The present method is causing meaningless waste of useful coals.

8. Grading is necessary to ascertain the purpose for which such coal is fit. Mining Engineers can never approve of the present reckless use rather waste of coal irrespective of their usefulness for any particular purpose. Grading will thus prove useful both for internal consumption of coal and other purposes.

9. _____

III.—Port Facilities

10. Washing plants and screening plants with picking belts should be added.

11. _____

12. _____

IV.—Railway Facilities

13. Mr. Attlee has said that war weariness should not come. Work should go on as in war. Consequently with available arrangements and usual additions these will prove sufficient.

14. 20 hours system of loading is still in force on many sidings. 10 hours' day light loading should be introduced except during summer when afternoon loading should be encouraged save where mechanically done.

15. All orders should be handled by the Coal Control Board and distributed according to class of coal worked. *Prorata* on basis supply of daily available wagons if strictly introduced would solve many Coal problems connected with allotment.

16. Collieries' own gain; no general concessions necessary.

17. None but the demurrage and wharfage charges be made only nominal.

18. The investigation is conducted by an incompetent authority but should be worked on the recommendation of a representative Board.

19. Arrangements for making up underloadings from overloaded coal at the weigh-bridge will avoid unnecessary loss of time, every staff over bills of penalty and also the tonnage loss in traffic. The wagons are thus fully utilised.

20. Covered wagons if provided with a sliding roof to the width of the loading shoot will solve the problem and will suit all purposes and save capital to be blocked for open wagons to be specially provided for coal loading.

21. A common average freight rate should be fixed for collieries in Bengal and Bihar coal fields. As coal will be utilised for specific purpose no colliery will be at a disadvantage and no consumer will suffer as well.

22. This will be unnecessarily taxing the consumer, Bricks, lime and other consumptions are made when colliery raises the most. So the Railway does not suffer, neither the colliery nor the consumer. Railway should build stocks during dull season.

V.—Raising Costs.

23. Rs. 2. Rs. 1/15. Rs. 11/8.

24. 25%, all-told the same but the higher output reduces the general costs. No, for incomplete installations, for absenteeism etc., undoubtedly.

25. Yes, owners have partly tried but were shy of investment due to low price of coal. At present want of materials has stood in the way.

VI.—*Railway coal Requirements*

26. There is no declared policy known yet.

27. Railways consume about 30% to 40% of output.

Reckless use of coal has so far been followed. The best metallurgical Giridih coal is burnt for steam raising purposes and so also many Jharia and Ranigunj coals. An analysis of accepted tender of coal will convince the reader and will supply actual figure of quality in respect of quantity.

28. Up to 20% ash. Yes it is said by B.A. Railway. Railways may be referred. If the questionnaire contained these details better comments on them might be possible.

29. No complaints have since been heard of. Every possibility if so desired to be effected.

30. Although burning a little more coal Railways will be saving a great deal in National wealth by such adaptation.

VII.—*Stowing*

31. Very limited, because there is no declared policy in giving effect to the scheme. Voluntary stowing depends on price of coal, necessary installation, availability of packing materials electrical power for pumping etc. "If these are removed the result would amount to compulsory stowing which should be enforced.

The conservation and safety are so closely related as to be almost synonymous. So far as introduction of stowing in any mine is concerned. The Board did not and could not meet this end and so many difficulties arise. Goaves in gassy mines cause accidents in the particular case and stowing is necessary for safety. Another mine causing goaf will bring in fire and inundation and damage the area. Compulsory stowing should be enforced but is refused on the ground that if that coal is not removed no danger is apprehended and loss of this coal is a question of conservation and not of stowing. Common senses says that if goafing is not allowed in the gassy mines no danger is also apprehended. Goafing is done from the primary view of conservation. So compulsory stowing be immediately enforced in all mines. If packing materials is apprehended to fall short of after 30 years science may investigate in that direction from now and find replaceable means, why lose coal reduce day by day surface cultivating lands, demolish many buildings, spoil building materials, life, other properties infecting places with malaria by water filled subdences etc., when the situation can be saved by increasing the excise tax a little for all classes of coal including soft coke and hard coke.

32. May be available from the stowing Board.

VIII.—*Miscellaneous*

33. Acquisition of surface will help the colliery and cultivators as undue advantages are taken in many cases to the great suffering of the affected (Mine owners or cultivators). Rates for classes of lands be fixed and class of land be certified by a representative authorities with land Acquisition Officer.

34. Small coals of quality suitable for boiler etc., may be briquetted for easy use. Such briqueting machines being fixed near weigh bridges where such coals may be dumped & briquetts manufactured. Individual arrangements impossible for insufficient and irregular availability of smalls.

35. Practically nothing. Less handling. More efficiency less freight charges, avoidance of unnecessary traffic, inferior coals made useful.

36. The first work that the country can demand of Fuel Research Institute is a comprehensive list of analysis of each seam and of every colliery and its recommendation for its suitability in use; the second its recommendation for particular kind of coal for particular and general factories and mills, coke ovens etc., thirdly by-products available from each such coal.

37. A little, but on the recommendation of the F.R.I. Govt. should enforce coking manufactured under circumstances by which gases may be piped to a local centre for production of Benzene etc. The reckless waste of gas by soft coke making at present may thus be immediately checked. If water can be piped 70/80 Miles to the coalfields why not gases to a local central bye-product plant.

38. Unless most people—including workers are trained in rescue the arrangements are incomplete. Lantern lectures followed by exercises at the collieries be introduced to create pit sense and a sense of security.

39. Primary education scheme should be pushed by Government even in collieries where labour may be taken advantage of. Vocational training in different colliery work by slides and lecture would engage evenings idly spent otherwise. Games, Swimming enforced and gardening and poultry and keeping of cows among women and children should be introduced and encouraged by stipendiary payments for growth of a healthy labour force. Govt. should not count on excise revenue but help management to reduce Liquor habit to a minimum. Women should be allowed to work by improving working conditions underground to increase family income and continue a settled life in mining instead of looking for a suitable migration to a factory or field work where both men and women can earn and work together. Immorality among labourers will thus be reduced. The relevant part of my explanation to questionnaire I may be referred to for further details.

QUESTIONNAIRE II

I.—*Constitutional*

1&2.—The mines and minerals are an all-India question. The Central Control with a representative advisory body is desired. The

supply and distribution concern an all India affair as well. One system should pervade throughout the Country. Provincial Government may operate these directions from the central and forward views on improvement when and where necessary.

II.—Economics of the Coal Industry

3 & 4. *Structural organisation on the Industry*—Managing Agency system should be abolished and profits so secured may be utilised for the improvement of the Collieries. Coal Industry should be independently worked otherwise coal industry has to work under different circumstances and conditions. When such main industries thrive their coal mines improved and sectional workers are interested. They defy competitive prices, rates, wages and move independent of the trade. They also affect distribution and supply and have been responsible to a great extent for the slump and dislocation of the trade and crippling down the industry.

5. No.

6. They have spoiled the Industry dictated unremunerative prices only because they owned mines and had beg Govt. capital behind them which individual ownership lacked and would have killed the Industry but for the war when Govt. was brought to senses to realise the neglect and tortres the trade suffered whereas the Industry suffer for a siding the Railway collieries had them at a moment's notice and every other facility at their disposal.

7. *Ownership & Management*.—Never, Govt. have been responsible for the dissipation of coal resources. Private owner lacked support or had to work under legislation suitable to vested interests.

8 & 9. This is an unnecessary interference unless with a view to nationalise the Industry

10. Private ownership with Govt. assistance in consultation with a representative body over production, distribution, marketing, price fixing etc., on lines previously suggested.

11. *Finance*.—Yes, Govt. may help by hire-purchase system to modernise their equipment and by bank facilities to give effect to this and avoid loss of income by payment of high interest etc., which could be utilised to ameliorate difficulties in mining.

12. Not aware.

13. *Production*.—The low output per head in India has bearing on many factors :—

(a) Tropical climate.

(b) Malaria and other diseases, reducing efficiency.

(c) Under payment causing under nourishment.

(d) Indirect assistance to addiction to Liquor and consequent absenteeism.

(e) Low wages requiring arrangement for agricultural and other additional occupation.

(f) Insufficient payment for sickness period.

(g) Underground arrangement and conditions difficult and different.

(h) Untimely supply of tubs etc. etc.

(i) Withdrawal of women reducing family income. 25% generally.

14. By meeting the above and other suggestion made in my report under general head in Q.I.

15. (a) No. (b) to an extent.

16. It is difficult to state how far the estimate represents facts unless a complete list of actual requirements of coal of the country after careful scrutiny of each case by a representative body is prepared as already suggested in my answer to relevant questions and in particular under the head "general" in Q.I. As it is, the estimate appears to be imaginary and on discussion of the circumstances the latter idea lends more to the truth. If the coal, resources in India are limited, if the output does not balance the requirements, if measures to economise coal consumption by installation of costly machinery are being examined, if high grade coke and coals are to be conserved for which expert Committees have been set up to consider the initial and recurring expenses for the purpose—one fails to understand why licenses are till being issued for exports not only of steam coal but also of high grade coke to countries outside. Secondly an acute shortage of wagons is still being felt and the daily indents of the collieries cannot be met even on the present output of the coal fields. We are also aware that with all legislation and restriction Govt. measures have so far failed to supply soft coke necessary for the preparation of the daily food in the country—leaving outside other questions Millions of our countrymen have still to deny themselves readily cooked food but have to be content often with one meal for scarcity of coal. Has not the country right to enquire at whose instance and direction such irresponsible and utterly thoughtless action are being perpetuated and what argument can be advanced for the wanton carelessness amounting to no less than a crime? Whoever he may be whatever he may try to profess these can not be accepted as actions possible of expert nor can be called a friend of India.

Do not all these therefore point to the conclusion that a gloomy picture is being held before the public to quieten them and thereby avoid question and objections which no responsible citizen will venture to raise in the face of this state of affairs (and imaginary shortage of coal)? Or alternatively it may be supposed there must be a purpose behind the scene and some organised interests are pulling the string to gain their objective.

At the sametime I do not suggest that India should totally close her doors to foreign trade. It is not desirable—nay imperative on the Govt. first to ascertain the position and then act as the situation permits. Great opportunities were lost when the Deputy Coal Commissioner's (Distribution) office, was in full form and facts and figures for the above purpose could be readily collected and made available. But as it is never too late to mend, Govt. should not allow a single ounce of coal to go outside India

and legislate to penalise any unnecessary use or waste of coal in consumption for purposes not intimately connected with the urgent necessities of the country—especially in respect of high grade coal and cokes, so long as Government is not ready with its report and its programme to go ahead.

Or should the Govt. follow its usual practice to remain callous and silent until the injury is complete and when committees will be set up to report as past actions and to regret afterwards for what has been done. When graver questions as of food and cloth received similar attention and were equally shelved there is very little to expect otherwise in respect of coal—less important item. A careful examination is sure to reveal that much more gungling is being done quietly in the name of trade than can be thought of.

If on a careful examination any deficit in production is apprehended the following remedies are suggested to make up the discrepancy.

- By (a) opening up seams at low depths.
- (b) restricting reckless use of best coal for any and every purpose.
- (c) Utilising the coal gas from soft coke ovens for colliery consumption.
- (d) supplying right-type of coal for right work.
- (e) by enforcing stowing to get easily obtainable coal from locked areas in barriers and under Railway sidings.
- (f) by completing the power supply line in Ranigunj field under contemplation.
- (g) by easier supply of tubs and other facilities for work underground.

Distribution and Marketing.

17. (a) Central Marketing agency under Government with a representative committee of the trade.

(b) Price fixation and marketing are different questions and should not be combined.

(c) Price on calculation of cost of collieries with special subsidies for difficult condition from working and conservation points of view. Never on sales—quotas. By Govt. in consultation with trade.

(d) (1) A list of coal requirements of all consumers for various classes of work and a list of output of coal of different grades and purposes and allocated as necessary.

(2) Owners, merchants and consumers should join the committee.

18. Yes. Quite possible on the figures and facts with the grading Board and Deputy Coal Commissioner (distribution) to start with to be rectified by complete analysis and on rotation of working by compulsory stowing.

19. Complete regulation is the only solution.

20. Deputy Coal Commissioner (Distribution) should distribute orders on the grades and analysis at hand.

21. Sizes depend on the grates. The present sizes may be followed but reduced with improvement in grates to use run of mine coal. As far as possible for internal consumption.

22. *Transport.*—As far as possible but not in disregard of quality causing waste coal on the other hand only for the purpose of a little saving in transport.

23. This is a very naughty question and should be limited to development of minerals only and to no other Industry Cotton grows in Bombay and if Bombay mills require coal at common freight Bengal mills who will have to transport cotton will suffer.

24. I approve of the present system plus the improvements suggested. Quality of coal should have no bearing on railway freight as every coal has a national value and use.

25. Should be reduced as far as possible to give impetus to Industry which in turn will return the Railways the above benefit by improved traffic.

26. No discrimination should be allowed. This has already crippled Indian enterprise.

27. This handicap regular flow of coal and supply of wagon and tell ultimately on the output.

28. Railway people can answer the question better. The experience gained during war may be gone into and experiment carried for a little while before permanent agreement and arrangements are made.

Price & Profits

29. Free competition in India with official manipulation from behind the screen had brought the Industry to the stating of a gasping patient just prior to war and had led to uneconomical working resulting in loss of life, property, coal etc., as answer to this question has been stated above no repetition is made.

30. Never, they have been directly responsible for bringing the industry to this state of collapse.

31. Already stated, the working cost plus profit plus all cesses should form the basis of price-fixation with special concession for special circumstances.

32. Present proportion not objectionable. But the minimum price should be very carefully fixed.

33. Already discussed. The several managing agency annual reports may be referred to for different elements of profit.

34. The question has already been discussed by the Deputy Coal Commissioner (Distribution).

Taxation.

35. No relief necessary if price fixation Board take all these into consideration.

National and Inter-national Commercial Policies.

The international Commercial Policy will reduce uneconomic competition apart from business.

36 & 37.—Adverse—The withdrawal of women from underground has almost killed the mother race and axed—the growth of mining labour.

III.—Conservation of High Grade Metallurgical Coal.

38. Please refer to report by Geological Survey of India to be made uptodate by different scientific and mining bodies and institutions working together.

39. Much waste is effected as high grade Metallurgical coal has very limited use.

40. ———

41. ———

42. ———

43. ———

44. No, study of coal consumption of these—and other works necessary to supply the right type and amount of coal for different purposes.

45. Indian Mineral and development would require high grade Metallurgical coal. Waste of such coal for steam raising purpose should not be tolerated.

46. Yes.

47. Already discussed.

48. Adjusted by reduction of output and by not closing down altogether labour utilised to replenish steam coal by working other seams. Price of cooke accordingly fixed.

49. State ownership not desirable. Government should only look to waste.

IV.—Conservation of High Grade Steam coal.

50. Please refer to reports by Geological Survey of India be made uptodate by combined work by different scientific and mining institutes and bodies.

51. For purposes where other types of coal will fail.

52. Restriction to avoid waste as at present by using it for specific purposes.

53. Referred to replies in (49).

V.—Conservation generally.

54. 50% stowing has improved percentage where adopted.

55. Compulsory stowing for extraction is necessary. Other side issues will help the cause.

56. Working of seams or section of seams will depend on India's coal requirements from any seam or section. Rotation of working of seams or part or section thereof has the same bearing. Without compulsory stowing rotation of

working will have very little effect in ultimate conservation of coal. Fire and inundation will act as now on the loss of coal in the bottom seam during extraction.

57. Please refer to my reply 31 in Question naire I.

58. Govt. should supply sand for compulsory stowing. Sand rights need not be taken by Government. But purchased by a nominal Commission which will be subject to excise duty.

59. Yes, by the way Mines Board of Health cess is assessed.

60. Compulsory stowing is the only solution. I have left much coal for support of the siding which could be easily extracted by stowing.

61. Very little. Yes to meet the shortage of coal output apprehended.

62. Indian Mine Manager Association had long suggested big power station at Kajora to supply power all the way downwards to Calcutta.

63 & 64. Already discussed.

VI.—Mining leases and Fragmentation.

65. To a good extent. This has given rise to impetus to develop and prove coal in unexploded areas.

66. This effect has been on cost. The right is now generally granted on payment of a nominal sum of money but I am not aware of any reasonable denial.

67. ———

68. Interference unnecessary.

69. This lack of capital and banking facilities has led to fragmentation of holdings. This holding becomes uneconomic when coal is to be drawn from depths—otherwise not.

70. In National interest loss of coal as a result of working is undesirable. There is no loss of coal for small holding and hence does not affect national interest.

71. Useless. Compulsory stowing first necessary to prevent loss of national wealth by working only best seams or best section and letting the rest seams to be lost for ever. Full energy and attention should be directed to this first. When this is done, uneconomic holdings may be questioned—but appears ludicrous at the moment.

A colliery is formed of several panels divide by barriers of coal. A big colliery has many panels and a small colliery has a limited number. How such fragmentation has led to unnecessary loss of coal is beyond human consideration. Barriers of coal between two small collieries equal coal locked in barriers of two panels. There is no case for state ownership of special officer of legislation. If voluntarily amalgamated for the purpose of cost that will help managing agents share holders and owners. There is no national loss or gain or interest thereby.

VII.—Opening of New coalfields

72. Eastern end of Ranigunj coalfields and south eastern end of the same fields G.S. to take up extensive borings C.P. and Bihar and Chotanagpur.

VIII.—Administrative measures

73. Unnecessary harassment to the colliery only one body to collect on a certain basis to meet various objects. This would solve many difficult and unnecessary trouble and loss of time and cost of collection and similarly one body to spend the same.

74. Already stated. They are so to say synonymous and work for the same object. One single body with full representation would centralise and better handle matters.

75. Undoubtedly. Each of them presents year—and a big suggestion report with the sorry tale of insufficient funds for inaction. Concentration will do away with the present shows and may bring in life, worked and substance in such service

WRITTEN EVIDENCE OF PROF. L. A. NATESAN,
PROFESSOR OF ECONOMICS, SCOTTISH CHURCH
COLLEGE, CALCUTTA.

QUESTIONNAIRE I

I.—General

I consider that the conditions which impressed the Coal fields Committee, 1920, and the Coal Mining Committee, 1937, to recommend control by the State over methods of extraction etc., have not ceased to operate. Legislation so far has sought to deal with the problem of safety only, leaving out that of national conservation is the comprehensive sense—not merely in the sense of protection through avoidance of fires, spread of fires, inundation by water etc.

The need for a Statutory Authority would exist, even if the Mines Department and the Stowing Board carry out all desirable measures in the interest of safety and conservation. Questions of policy need to be handled by an agency different from an executive department intended to carry out the regulations.

II.—Grading and Exports

2. The case for stimulating export trade has steadily grown weaker during the last 20 years and the findings of the Coal Mining Committee 1937, have definitely knocked the bottom of this policy in view of the very limited coal reserves in the country and of the urgency of conserving them for the future requirements of India's industries.

3. General opinion on this point appears to be that grading has helped to restore a sense of confidence and of fair dealing in the minds of foreign consumers. Grading must also have assisted towards setting up better trade practice.

8. Grading of coal is necessary to make the best possible utilization of the limited reserves of good quality coal. The good quality coal has been

considered a raw material of such strategic importance that in the larger interests of the country it should be limited to the needs of metallurgical industries only. This can be ensured only by proper grading and placing an embargo on its use for industries to which it is not essential and for which inferior coal may be used. If these results are to be ensured there is no alternative to compulsory grading.

22. Doubts as to the possibility and desirability of introducing seasonal rates for coal has been settled during wartime by the Railways themselves. With a view to securing maximum utilization of rail capacity during wartime, a seasonal discrimination was not only considered desirable, but necessary. Objections to such rate discrimination came from the railways themselves at the time when it was definitely proposed to the Indian Coalfields Committee 1925. Such a distinction appeared to have been in force on the G.I.P. Railway. There is, therefore, no reason why this should not be retained as a permanent feature for coal traffic.

The real justification for this distinction is in the operating advantages of keeping the stock more evenly and intensively utilized in slack times. The spread throughout the year will help to reduce the peaks and bottlenecks in busy time. This is bound to have a beneficial effect on the coalmines themselves which cannot escape the oscillations of traffic concentration in particular months.

40. The development of a settled and contented labour force offers a challenge to the industry. Policy of the State while the industry is in private hands, can only touch a bare fringe of the problem. The attractiveness of the profession of a miner as compared with that of an agriculturist is not much to reckon with unless the wages are sufficiently attractive and offers the prospect of stable employment. The views of the Royal Commission on Labour on the conditions of workers during 1929 in coal mines were far from reassuring, and their pointed reference to the undesirable conditions in a State owned mine is significant. The present economies of working may not permit of an abrupt increase of wages, better amenities etc. The status of a settled life in a mining community must be rendered sufficiently attractive. But this can come only from increased productivity of the miner. The remedy is mechanization of the industry as speedily as possible.

QUESTIONNAIRE II

1.—Constitutional

1. The provincial administration of the mines under the Government of India Act, 1935, has hardly had a fair chance of being tested as a result of the resignation of the Ministries during war time—and it is therefore not correct to disturb the present constitutional position. The case of coal and certain other minerals of strategic value fall into a special category of national conservation and consequently justify exceptional treatment. If nationalization of coal mines as has been generally accepted is to be the policy in the immediate

future, the question of separate legislation affecting the division of responsibility between the Centre and the Provinces need hardly arise. It is when this issue is buried, that trouble is likely to arise. If the nationalization is not going to be taken up, it will be necessary to legislate in detail for Central regulation—not control—of coal mining, development, production and distribution. The size of the country, the diversity of interests involved, the limitations of the Central administrative machinery for detailed control, and the severe reaction against the continuance of wartime Central Control will make for great unpopularity and administrative failure. The Central Government in the role of a national arbitrator will be far more helpful than one in the guise of an interested party. Such an attitude implies a Central Government taking powers in respect of certain matters and leaving the rest for provincial control and these would relate to :

- Safety,
- Conservation measures,
- Grading,
- Labour—hours, minimum age, women & child labour, inter-provincial relations.

2. I do not visualise the need for a Department under a member of the Executive Council to deal with Coal and other minerals and mines. The Statutory Authority referred to in Questionnaire I should be in a position to deal with such matters and make all recommendations or orders to be carried out by the Central and Provincial Governments. This is likely to avoid treading on the delicate ground of Central (Federal) and Provincial (and State) jurisdiction. The experience of the United States with the interstate Commerce Commission is a lesson in the administrative regulations of such questions.

II. Economics of the Coal Industry.

3. *Structural organization of the industry.*—The organization of the coal industry certainly presents a spectacle of large and small, enterprises, control by Managing Agents having other industrial interests and by railways and other undertakings to supply their own requirements. The unsatisfactory features in the situation could be removed at one stroke by nationalization, and this alone provides an important argument for the policy.

4. The Managing Agency system has already received a shock, but the decision to give it up depends on the alternative available.

5—6. The close alliance between units of coal production and industrial interests deriving their supply therefrom, as with railways, iron and steel industry, cement companies etc., is explained by the desire to escape unfair advantage being taken of their needs by the collieries' interests. In the early twenties, there was certainly evidence that the coal interests, if they acted in concert, could enforce their demands as to prices. It was because of this experience that railways as well as other industries, for their own security, acquired their own coalfields. The threat of supplying the bulk of their requirements, if not entire-

by from their own collieries, had the salutary effect of maintaining comparative prices and preventing combination of private coal interests against large consumers. The policy, I believe, was on the whole effective as regards railways, and I should imagine other large industries which had their own collieries as well. The depression in the thirties might have been accentuated by the loss of this bargaining position to the private producers. Here again, the answer depends on the alternative. It could be argued that from the point of view of the country as a whole, the existing position was not unsatisfactory. Taking railways again as an example, the cheaper cost of coal as a result of the policy of relying partly on their own collieries for coal, kept down the cost of operation and consequently the cost of transport. Higher prices of fuel which might have prevailed but for this policy would have benefited the coal interests alone. There is no certainty that the larger profits made by the coal producers in consequence would have been passed on to the workers in the form of higher wages. Nor can one imagine that these might have led to lower prices. It is essentially a question of better organization and efficient methods of production.

Ownership and Management.

7. The private ownership of mining rights and uncontrolled grant of leases were considered by the Indian Coal Mining Committee as being responsible to a large extent for the dissipation of coal resources, and Government acquisition of these mineral rights is certainly justified.

8, 9 and 10. I am rather diffident as to the efficiency of direct operation by the State. I feel that public confidence in the honesty and integrity of Government Administration has been rather badly shaken during wartime. A large scale experiment of this character had better to be postponed to a later date. Meanwhile it would be desirable to rationalize the industry, with Government retaining its present interest which is considerable—in coal production. An intermediate state of organization through the development of a Coal Corporation—if necessary more than one on regional lines—absorbing various smaller and larger collieries, somewhat on the lines of the railway amalgamations under the Act of 1921 in Great Britain, may be helpful. In view of the element of private operation I do not envisage any system of close control over production, distribution and marketing, but the policy of Government in the interest of national conservation economic utilisation, needs of industrial and other consumers will have to be laid down. The State has already a large interest in the coal industry. This along with the control over railway rates and facilities may be considered adequate for exercising a proper check on the production, distribution and marketing.

Finance.

11—12. The existence of a certain number of infra-marginal undertakings has been admitted and it is in respect of these that difficulties have arisen in the past to modernize the equipment and adopt the most efficient technique of production. Here also the suggestion made earlier for

the amalgamation of the existing collieries, large and small, into a few major regional corporations would be of help. In connection with the formation of these Corporations the capital, equipment etc. may be assessed and valued for the determination of the capital of the Corporation. I should say that the task here is fairly less than the magnitude of the problem presented by the British Railway amalgamation.

Production.

14. Certain suggestions were made in connection with labour in answer to question 40 in Questionnaire (I).

Distribution and Marketing:

17. The idea of a Central Marketing Agency is an attractive one but under the present circumstances it would be desirable to have it on a private basis without any direct Government control, but in view of the substantial interest the State has in some of the larger coalfields Government will not be altogether unrepresented. But the feasibility of any such machinery functioning smoothly depends on the organization of the industry itself. The existence of a number of well-managed and inefficiently worked mines competing with one another will not be pulling effectively in the right direction. The formation of regional Coal Producing Corporations will assist matters considerably. The State in such a scheme will assume the role of an important member and can keep an eye on the maintenance of the public interest, the interest of the consumers and of the country's requirements generally. As regards the collieries their individuality in the particular region will disappear as they will form part of the properties managed by the Corporation. The managing agents or proprietors may ask for representation in the directorate of the corporation. The merchants and brokers and consuming interests may supply an advisory committee to advise the corporation somewhat on the lines of such committees for other industries.

18. Complete regulation of the use of different coals for different purposes may not be practicable. If the choice of fuel for different purposes is defined and there is price differentiation, the policy may be effective. One practical method is to have a differentiation in freight rates roughly corresponding to the type of coal. Such a policy can, of course, be formulated only when a fair analysis of all Indian coals is available.

19. Restriction on certain large consumers only is not enough. Railways for example account for only a third of the total coal production. Obviously the regulation of the remaining two-thirds is more important.

20. This question of responsibility for correct dispatch will arise only when the organization of the coal industry has not reached the stage of responding to the execution of national policy. Once again the answer would seem to be the formation of a large organization on regional lines made up of all the collieries of the neighbour-

ing areas and relying for its profits not in evading the requirements, but on the volume of output, large scale methods and economical working.

21. I have no special knowledge to give an opinion on this question, but I have come across the following specifications adopted in the United States.

Size of coal	Round mesh through	In inches over
Broken	4.375	3.25
Egg	3.25	2.4375
Stove	2.4375	1.625
Nut	1.625	0.8125
Pea	0.8125	0.5625
Buckwheat No. 1	0.5625	0.3125
Buckwheat No. 2	0.3125	0.1825
Buckwheat No. 3	0.1825	0.09375

Transport.

22. Taking the phrase "economic range" to imply the furthest economical limit of movement, it is true that there may be such a limit imposed by the cost of coal and the freight charges to the consumers outside such a limit. But the decisive factor here is not this cost as such, but the cost of alternative supplies to the distant consumers and their ability to bear the charge. Movement by rail to the Calcutta Port and thence by sea route may extend the range of coal movements to more distant areas. A modification of freight rates may have the same effect. But taking these factors into consideration one has to consider the all—in social cost—the total cost to the country in terms of labour, service of capital, freight movement etc., in making available the supplies. It may well be that in the larger interests of the country as a whole, it will be advantageous to eliminate duplication of movements and to adopt a zonal system. In the natural course of development such a system must be in effect in the areas surrounding the coal producing centres. There may be competition and duplication of movements in neutral areas, which are accessible common to both coal-producing centres. Here some competition may be eliminated where telescope scales of rates is making the competition possible.

23. This question is not clear. The term "freight" may mean either the freight rate charged or the cargo lifted. I take it in the latter sense to refer to the pooling of coal consignments to different centres. This should be the logical step and a consumer-organization is a necessary complement paralleling the consolidation on the production side. A move in this direction should, in my judgement, be welcomed.

24. I have indicated my views on this subject in a monograph on coal rates now in the press and copy will be forwarded as soon as it is ready.

25. (iii) is the principal factor determining the coal rate subject to the limitation imposed by (ii).

26. The answer depends on the character of the traffic movements to and from the destination point. Train-load movements will be economical to railways and may permit of lower rates only if return traffic of a fair, if not equivalent volume is obtained. This is a critical factor. To certain centres it may be practicable, but to many it may not. The experience of railway administrations must be scrutinized to ascertain where and when this system can be introduced.

28. The success of pooling of wagons should surely indicate the desirability in this case also.

29. Regarding the fixation of prices a return to the pre-war position is not desirable. As suggested earlier a better organization of the trade should precede the attempt to differentiate the prices for different grades of coal. It is not desirable that Government should attempt to fix a price. Its efforts during the war has not been attended with any significant degree of success.

30. I do not expect that the fixation of the price of coal supplies to Indian Government Railways and Iron and Steel Companies would provide "a sufficient impetus for achieving stable conditions in the industry".

31. Government intervention should be avoided as far as possible in my opinion. The constitution of the Coal Production corporations as suggested earlier along with the statutory authority more or less on the lines of the Interstate Commerce Commission should be adequate.

III. Conservation of High grade Metallurgical Coal.

45. I believe that there is no question of the case for restricting the use of metallurgical coal for the metallurgical industry. I accept the views of the Indian Coal Mining Committee 1936.

47. The only effective method of imposing the restriction should be through a price differentiation which would render the cost of metallurgical coal slightly higher than other grades.

48. The problem of the collieries which would be adversely affected would not arise if a rationalization of the industry precedes all these measures.

49. The answer affects only to the extent of nationalization. If it is decided to nationalize all the coal mines the question of the metallurgical coal will be included. I do not think that there can be any objection to start with the acquisition of metallurgical coal resources in making a beginning towards the extension of nationalization.

IV. Conservation of High grades Steam coal.

53. It is necessary to follow the same policy with regard to the conservation of high grades steam coal as that for the metallurgical. In view of the limited reserves it is no less important to use the available resources with the minimum waste and maximum efficiency.

104.—WRITTEN EVIDENCE OF MR. K.M. CHAKRAVARTY, DEPARTMENT OF CHEMISTRY, DACCA UNIVERSITY.

QUESTIONNAIRE I.

No. 8.—Yes, the grading of coal is desirable for the internal market as well. It should remain discretionary for some time with the ultimate aim of making it compulsory at the earliest opportunity.

No. 36.—An extensive research should be taken up to discover the most economical method of producing synthetic products particularly oil utilising low grade coals. This should represent a major research division under an Assistant Director. As I had no opportunity of going through the plans of research that have been drawn up I am not aware whether the above is already in the plan.

I take this opportunity of saying something regarding organisation. The structure of organisation of the Research Department and Establishments as it exists to-day in Great Britain is the result of years of experience. I think therefore that any similar organisation for India should have the essential features of the British organisation. Any departure from this should be subjected to a very careful and impartial scrutiny.

The following few paragraphs under quotation are intended to give an idea of structure of the British Organisation.

"The Department of Scientific and Industrial Research is responsible to a Committee of the Privy Council under the Lord President of the Council. It includes the National Physical Laboratory, the Geological Survey and Museum, the Chemical Research Laboratory, and the research establishments dealing with problems of building, food, forest products, fuel, roads and water pollution. There is an Advisory Council for the department as a whole and Advisory Boards and Committee for the different research organisation within the department....."

"A research department such as those controlled by large industrial concerns, by industrial research associations, and by Government departments should have, in the first place the advice of a Council or Board or other equivalent body, which should include, in proper balance, scientists of proved research ability and sound judgement and men of technical, administrative, and industrial experience, preferably from among those who can stimulate the development and use of the results of the field of research under view, and can assist in making intelligent forecasts of the probable changes in world markets and requirements. This need of general advice and balanced judgement is met in the Department of Scientific and Industrial Research by a main Advisory Council and by Advisory Boards, and Committees.

"The Fuel Research Board, for example, under the Chairmanship of Sir Harold Hartley, includes members of eminence in scientific research, technology, and industry, and representatives or assessors of Government departments concerned with fuels and with their use for various purposes. There are also expert committees to advise in more details of specific investigations in the programme of work. The members of the Boards and Committees are appointed in their personal capacity, not as representatives of any specific interests—and they freely give their services. In addition, so far as Fuel Research is concerned, there is a panel of scientific advisers on whom the Director of Research can call for specialist advice; these advisers receive an honorarium. The closest possible co-operation is maintained between the various research establishments of the department."

QUESTIONNAIRE II

No. 18.—The ultimate object is to conserve coal and also to meet the situation arising out of inadequacy of supply. For this we should not only see that the right type of coal under Indian conditions is being used but also that coal is being most economically consumed.

For the first a physical and chemical survey of coal is necessary for complete control. But some amount of control can be exercised even now with the informations regarding coal already available. For the second, measures similar to those taken by the Ministry of Fuel and Power in the U. K. should be tried.

The value of the physical and Chemical Survey of coals will depend on reproducibility of the data that will be obtained, their representative character and interpretability to meet the need of producers and consumers which are varied by nature, with as much of accuracy and thoroughness as possible. To ensure this a careful planning will have to be done. As a primary step a programme showing the investigations that will be carried out to meet the above requirements as adequately as is found to be possible on scrutiny, will have to be decided upon. As regards the methods to be followed a judicious selection will have to be made. The specifications of the methods followed in different countries are very often different and the properties studied are also not the same everywhere. These differences are probably due to different nature of the coal studied, local conditions, Government Regulations and so on. It may not therefore be a wise step to import into the methods followed in any particular country unless there are sufficient scientific and other acceptable reasons to justify the step. So in the matter of selecting the properties to be studied, methods to be followed and apparatus to be used we should do well to keep an open mind and try to be profited by the experience of scientists of other countries as well.

The method to be followed for collecting and preparing samples will be required to be considered also in the above light.

The task of making a list of the properties to be studied can be undertaken by a Committee consisting of Organic, Inorganic and Physical Chemists, Physicists, Geologists, Zoologists, Botanists, Paleo-Botanists, Statisticians, of Mining and Mechanical Engineers and of Oil and Fuel Technologists. This should be followed by preparation of specifications of the methods and apparatus by different Sub-Committees of specialists.

No. 21.—In this matter there is no uniformity of practice in Great Britain. This must be prevented in India. A committee consisting of Fuel Technologists of Mining and Mechanical Engineers and of Fuel Engineers and Economists having Indian experience should consider the various aspects of the problem and make recommendations. Here also we should keep an open mind and try to be profited by the experiences of the technologists of foreign countries.

No. 44.—I have not got in my possession actual data to say whether coal is being utilised in the most economical manner in Iron and Steel Works. It is believed however that there is ample room for improvements in certain cases. All the iron and Steel works should be asked to prepare weight and Heat Balances under the supervision of a Fuel Technologist in each case, deputed by the Government. Equipped with the data thus obtained a Mission should proceed to the U. K. and U.S.A. to study the extent of efficiency reached and likely to be reached in the near future in these and other industrial countries and make necessary recommendations.

No. 45.—The use of metallurgical coal should be restricted to iron and steel manufacture and other essential industries which cannot do with available substitutes including metallurgical coke breeze and briquettes made of this stuff. Special preference should be given to the former for upon this depend practically all other industries.

No. 51.—In this connection I think that the first thing to be seen is whether coal is being economically used, later on should be seen whether the right type of coal is being used. To judge in the latter case so far as steam coals are concerned we should be guided by the grading introduced by Coal Grading Board pending the physical and chemical survey of coals. To know whether coal is being economically used factories etc, consuming 300 or more tons of coal per month should be asked to prepare heat and weight balances regularly. These should be examined by a Government Department consisting of Fuel Technologists which will give necessary directions for improvement.

No. 61.—I agree that efficiency increases if coal is burnt in the pulverised form and also as suspension in oil in special types of burners. But considering the Indian conditions particularly the comparatively cheaper labour against the cost of pulverising, the capital expenditure involved

and so on, this is not likely to be economic at the same time and cannot probably be recommended without reservation for industries.

If it is decided to place only sized coal in the market some powdered fuel installations to burn the fines may become a necessity. As far as I know colloidal fuel has been used in the navy.

No. 62.—I agree with this suggestion in general terms. It goes without saying that project like this should be studied in detail by experts before a decision is made.

No. 63.—The present methods of producing soft coke are irrational and wasteful particularly in view of the fact that no bye-product is recovered. The technical, economic and other aspects of low and medium temperature carbonisation with bye-product recovery should be studied by a committee of experts. Investigations should be taken up for studying carbonisation of coal in an atmosphere of hydrogen under high pressure.

No. 64.—A start should be given in this direction at least by the Government. In view of the insufficiency of petroleum and absence of natural gases within the country we should study what oil-less countries have done in an attempt to solve the problem and then prepare a plan suitable for Indian conditions.

105.—WRITTEN EVIDENCE OF THE ADDITIONAL DEPUTY COMMISSIONER, DHANBAD.

(These views are personal and do not commit the Local Government).

QUESTIONNAIRE I.

No. 1.—Coal may be a necessary fundamental for the working of industry but the methods of obtaining it have brought ugliness and squalor to the coalfield. I refer not so much to housing conditions as surface collapses, causing diversion of roads and movement of habitations and rendering large areas of surface dangerous or unfit for habitation and even cultivation; 'Goaf' areas form large and ugly tracts of land abandoned to all use. Is it necessary that use of all such areas be forbidden? Can some at least not be filled up e.g., by dumping municipal refuse (if necessary after treating it scientifically so as to obviate the risk of self-combustion and possible igniting coal, if any, beneath the surface)? Such reclaimed areas could be put to use as cultivable land or parks and playing fields. Are communications always to be at the mercy depillaring operations? Much of the ugliness is also due to large members of small mines which scratch the surface for quick profits and leave a legacy of coal dust and abandoned quarries, inclines and pits little larger than pot-holes. Could not leases or workings be controlled by prescribing a minimum size for either the property, or the working or equipment of the colliery?

Question 33.—This does not arise here, S.50 of the CNT Act providing a summary method of acquisition, but the colliery has to be the landlord

of the surface or else the landlord must co-operate with him. Cases under this section in the last few years are given below :—

Year	No. of cases filed.	No. of cases in which acquisition sanctioned
1939	44	37
1940	11	5
1941	35	17
1942	29	26
1943	27	26
1944	40	45
1945	31	16

Question 39.—According to the census of 1941 the population of Dhanbad sub-division is 5,82,878. The average daily labour force employed in the coal mines in this subdivision was 1,17,833 in 1945. There were 370 schools for general education on 31st March 1945, as follows :—

	For boys	For girls	Total
High Schools	8	..	8
M. E. Schools	14	3	17
U. P. Schools	51	1	52
L. P. Schools	272	21	293
	345	25	370

Approximately 20,521 students are receiving their educations in these schools. In addition there are 50 recognized and nine special schools.

(1) Indian School of Mines (2) Sijua and Bhaga Mining classes (3) Gas Testing Class (4) Gobindpur E.T. School (5) One part time Industrial School (6 & 7) Two Sanskrit Tols (8 & 9) Two schools of Physical education.

2. The number of various schools within the Dhanbad Municipal area is as follows :—

	For boys	For girls	Total
High Schools	2	..	2
M. E. Schools	1	1	2
Primary Schools	10	2	12
	13	3	16

3. (a) The corresponding number for rural areas is as follows :—

High Schools	■	..	■
M. E. Schools	13	2	15
Primary School	313	20	333
	332	22	354

(b) These include a number of schools in the coalfield proper viz :—

	For boys	For girls	Total
High Schools	5	..	5
M. E. Schools	■	2	8
1. U. Primary Schools	9	..	9
2. L. Primary Schools	44	2	46
	64	4	68

4. It is thus clear that though the number of High Schools and Middle Schools is greater in the coalfield area than in the rest of this subdivision the number of primary schools is very small. This is due to the fact that the bulk of the labour of the coalfield is drawn from the neighbouring villages which have U. P. and L. P. Schools. A large number of labour is imported from other provinces but it is of fluctuating and seasonal nature. Since they come to the coal-

field leaving their family behind the necessity of increasing the number of schools in coalfield area is not urgent. It may only become so if the labour force is to be stabilized.

5. Out of 55 Primary Schools in coalfield area as many as 35 are unrecognized. They are run mostly by colliery workers. Most of these unrecognized schools are mere congregation of pupils and teachers. They have no curriculum, no syllabus and no plan of work. The result is that the money of the colliery owners, the energy of the teachers, and the time of the students are often wasted.

6. *Finance.*—(a) Out of fifteen M.E. Schools in rural areas, nine are managed and five aided and one un-aided. Rs. 28,878 is spent annually on managed M.E. Schools and Rs. 9340 on aided ones by the Local Board.

(b) The recognised Primary Schools in rural area is detailed as below :—

	Boys	Girls	Total
Managed	44	4	48
Aided	44	5	49
Stipendiary	212	11	223
Unaided	13	..	13
	<hr/> 313	<hr/> 20	<hr/> 333

The Local Board annually spends Rs. 32,841 on managed Primary Schools and Rs. 50,844 over aided and Stipendiary School.

(c) The Local Board thus spends a sum of Rs. 1,21,903 on Secondary and Primary Schools in the rural area of this subdivision ; this is out of a total income of Rs. 12,82,007. It may not be possible for the Local Board to spend more over education in view of the pressing demand for funds for improving sanitation, communication and medical facilities.

7. *Furniture and Buildings.*—The Primary School in the rural areas are housed in poor looking buildings. The buildings which belong to the Local Board are not repaired in time and regularly. By the time the repair is taken up the condition of the building becomes worse and the repairs proportionately cost more. Phutaba and U. P. School holds classes on a sand bed under a mango tree and Panduki Stipendiary school is held under a *Peepal* tree. The schools are ill equipped. A few schools have no furniture and teaching appliances at all.

8. *Pay of teachers.*—About 70% of the Primary Schools in the rural area are stipendiary. They are given a stipend of Rs. 7 to Rs. 15 a month according to the qualification of teachers. These teachers get very little income from school fees with obvious results. A Head Master in a M.E. School gets Rs. 40 to Rs. 50 a month and the teachers between Rs. 18 to Rs. 40 according to their qualification and seniority. The pay of teachers in Primary Schools is anything between Rs. 10 to Rs. 19.

9. *General Remarks and Suggestions.*—What is required is not an increase in the number of schools but improvement in existing ones even at the expense of closing some down. The practice

of opening a school at the cost of the Local Board at the door of every influential man should be stopped. Night schools employing colliery clerical staff and run by owners might be useful. This will be of tremendous advantage to the labourers. The Colliery owners who mostly run unrecognized schools should obtain departmental recognition for these schools so that they may follow the syllabus and text books. The pay of the teachers who are getting starvation wages should be increased. Ordinary labour in the coalfield area get at least Rs. 30/- a month while a teacher who shoulders the great responsibility of educating and building up the character of the pupils under him is paid Rs. 7 to Rs. 15 a month. The schools should be housed in respectable looking and well ventilated buildings and their repairs should be done at regular intervals. Furniture and teaching appliances need improvement. Arrangement for physical activities and games also should be made in the schools. All this means money. At present the District Board derives over a third of its annual income by levy of a one anna per rupee on profit and one pice per despatched tonnage of coal. The trade is against increasing this cess and presses that it should no longer finance the Sadar Sub-division but should have a separate local authority in Dhanbad. Such an authority might be in a better position to improve education and other L.S.G. subjects.

The Local Board may bring about some desirable changes in the schools which receives its aid by adopting some principles on the line of those followed by Board of Secondary education for giving grant to Schools. Some U.P. Schools get Rs. 50 a month as aid while some U.P. Schools get only Rs. 15 a month. In many cases the entire expenditure in a school is found by aid from the Local Board but the Managing Committee do nothing except to hinder efficient work. If the existing grant-in-aid is revised in the light of these observations it will make the Managing Committee alert and the conditions of schools may be improved.

Much can be done by the Welfare Department by arranging open air Cinemas and showing pictures on subjects like sanitation, domestic hygiene, art of living, coal cutting, Teetotalism etc. This will give the labourer some relaxation which they need most after hard manual labour and import real education to them. The Welfare Department is chalking out a scheme to start adult education in the coalfield area and this is to be supported.

Question 40.—The Royal Commission of Labour and the Bihar Labour Enquiry 1939 may be referred to.

My first point is that the miner should not be discouraged from maintaining his connection with the village, which provides him with a necessary holiday from the monotony of life by coal mine. But his holidays should be regular and determined with the employer as a matter of privilege.

From this it follows that the miner should regard his colliery quarter as his home. To make him so regard it, the advantages of village

life as far as practicable should be brought to the mine colony. These advantages are (1) quarters to house a family with a private yard and if possible a garden attached, (2) open spaces for relaxation.

Neither of these conditions at present obtain, nor will the industry be prepared to expend the necessary funds. Probably also with the present surface conditions (*Vide* question 1) land will be difficult to obtain. Both these difficulties may prove insuperable, since it will be difficult even for the Government to provide the necessary finances.

Thirdly, the monetary inducements should be increased and the miner educated to use his earnings economically so that high wages will not lead him to work less. The introduction of all amenities—cinemas etc., would help.

It may be that the increase in the population and the consequent pressure on the soil, may lead larger numbers to depend more regularly on mining as their primary source of income. It is also possible that when the Damodar dams are built and villagers turned out from the flooded areas, they may seek homes and employment in the coal industry.

QUESTIONNAIRE II.

2. I support the proposal for separate department of the Central Government dealing with the coal industry in all its industrial aspects, but the Provincial Government should retain control of its non-industrial side, *viz.*,

Education,

Public Health,

Communications, etc., provided a distinct line be drawn between these aspects and Labour Welfare work.

No. 5. I should say that the connection of mining with other industry is both healthy and unhealthy. An interest with powerful finances derived from the linked industry, *e.g.*, steel, can afford to run its coal mines at a loss, and will not mind inflating wages and providing working conditions which the rest of the industry, dependent on the open market, cannot afford.

No. 7. The present private ownership of mineral rights has led to corruption and jobbery in the estates and in fact three of the finest estates *viz.*, Jharia, Katrasgarh, and Nowagarh are financially bankrupt. The zamindar is often illiterate and in the hands of unscrupulous managers it is said that the finest coal lands have sometimes been settled for a long if the manager can be bribed. The outright purchase of mineral rights by the State may not be practicable because the price demanded for the Jharia Pologround alone is said to be Re. 1 crore.

No. 10. At the present stage of India's industrial development private enterprise has not yet outlined its use. Legislation controlling leases, or even state "administration" of leases, may be sufficient to diminish existing defects in the leasing system in so far as new leases are concerned. Correction of old leases which are unsatisfactory

may however lead to great expense. Actual production may be left in private hands. The Government machine in India is not so efficient as to displace private enterprise entirely.

35, 73 and 75. The Mines Board of Health has recently raised its cess from Rs. 3 to Rs. 4 per 100 tons. The maximum it can impose is Rs. 12/8/- per 100 tons of raisings. The Board is concerned that its efforts to raise adequate funds be not impeded.

An organisation combining the functions of all the local bodies and a consolidated cess to finance such an organisation *e.g.*, the cesses paid to District Board and Mines Board of Health provide a simpler system. A saving in taxation may then be possible, if this subdivision is no longer required to contribute to the Purulia District Board's revenue. A scheme for an amalgamated Board is under the consideration of the Bihar Government.

106. WRITTEN EVIDENCE OF MR. M. C. GUHA
P. O. KATRASGARH, E. I. R.

QUESTIONNAIRE I

(1). I am in favour of a Coal Control Board consisting of the representatives of the :—

(1). Central Government. (2). Local Governments concerned. (3). Colliery Owners. (4). Railway's concerned. (5). Iron & Steel. (6). Mining Experts. (7). consumers. The Board should have not more than 20 members :—

All the existing coal controlling authorities should be under this coal control Board. The following are the existing controlling authorities (1) All the Departments of mines and its branches *viz.* (a) Board of Examiners, (b) Mining Boards and committees, (c) Metamity benefit, (d) Rescue and (e) Stowing Board.

(2). All the departments of the Mining Engineer Railway Boards (Grading Board). (b) Soft Coke cess Committee etc.

(3). All Coal Commissioners Department.

(4). D.U.L.S. Colliery Labour Department.

(5). Colliery welfares such as Mines Board of Health, Water Board etc. Malarial Board, Education Board, District Board and Municipalities within the coal fields etc. and the like. The said coal control Board shall have power to frame rules, Byelaws, Regulations etc. for guidance, control and to regulate the different departments.

Replies to (7) and (8) Re : Grading.—

(2). I am in favour of setting up of loading Inspectors who will look after the standard of loading of coal meant both for internal consumptions or for export. These Inspectors would be controlled by a sub-committee consisting mostly of coal consumers or their representative, (a) Ry and a re-presentative of the coal control Board. (b) I am in favour of taking samples from wagons for the purpose of grading of coal—so each card label of a loaded wagon should bear the name or NO of the seam from which coal has been loaded.

Railway and other facilities :—

(18) More siding accommodation should be provided—more Engine Powers more wagons and double or more Railway Lines should be laid out for better coal transportation facilities. Besides Railway water and road transportation should be encouraged.

(33) Land acquisition for colliery work—

I do not know what section 84 of B.T. Act stated but I know of sec. 50 of the Chota Nagpur Tenancy Act which states that the superior landlord may apply for surface acquirement belonging to any tenant for colliery purpose. In many cases the superior land lords show indifference to do that. It also takes considerable time to get actual possession if the case is contested. This 50 sec. should be amended so that (1) a colliery owner may apply direct for acquirement. (2) The possession should be given immediately with the application if the land is on the colliery lease hold and the colliery deposits an amount as may be directed by the court. The value of the land may be settled later on.

36. *Fuel Research Institute* is essential for (a) making Hard Coke and bye-products after blending better classes of coal with less qualities or with highly coking coal with non-coking coal from samples taken from loaded wagons.

40. Labour colony at or near the collieries car or bus to bring them and to return them—Ration supply arrangements cooking food arrangement in mobile wagons—water, Education and sporting arrangements at each colliery. These arrangements should be in the hands of a Board and the 1st cost would be borne out by the Government and would be realised by from the colliery owners on a cess like water Board. The above arrangements would produce contented labours.

QUESTIONNAIRE II.

1. Under questionnaire No. I. I have expressed the opinion that whole of the controlling bodies about coal should be placed under a Board consisting of the representations of central and local governments, the colliery owners, mining experts Rys. and consumers, for guiding, controlling & directing the whole of the coal mining affairs and also enacting legislation (to be approved by the Legislative Assembly concerned) for those purposes. I am not in favour of placing control in hands of a government, not responsible to neither the colliery owners nor to consumers. Such control by an unrepresentative Government. would only give preference to one group or class or one trader to another group or class or to another trader and also corruption practice would be current. The present coal controlling authorities are (1) The Chief Inspector of mines and the branches. (2) Coal Commissioner and the branches. (3) Mining Engineer Railway Board and the branches. (4) Mining Welfare—Mines Board, Water Board Municipalities & Dt. Boards within the coalfields.

6. By owning collieries of their own the Government Ry. (a) controls the coal markets (b) By controlling the wagon supply the Government also can control the coal market.

9. The mineral rights should remain undisturbed. Instead of enacting legislations for state control finances should be advanced on conditions that will amount to control. Legislations are to be enacted to that extent as to create a field for accepting finance.

10. A state responsible to colliery owners and the consumers should exercise control for better production, distribution and marketing.

11. *Finance*.—It is true that many coal mines are under-capitalised. A financial Board (under the coal control board) may be set up to arrange finances, supply machineries and construct buildings and dhowrahs on each colliery to get rent and to supply electric power on conditions that will amounting the control of the coal mine. Banks should be induced to play its parts like the coal merchants now doing often with higher rates of commission per ton.

12. Over-capitalisation may have unfavourable repercussions on the stability of the industry; but even that finance can soothe it in time of restrained period and the money could be realised when its turn will come for full swing of raisings and despatches. But throughout all the period the development work of all the coal mines (nearer to a Ry system) should go on.

14. By mechanising coal mines will increase the raisings per head.

15. Competent contractors can increase output. Unsystematic mining can be prevented by constant supervision by honest managers and officers superior to managers.

16. By fitting undevelopment coal mines with up to date machineries, by supplying electric power from a central generating station and by bringing in Rly. lines nearer to coal mines and nearer to rich coal deposits—the deficit in production may be made up.

17. A central marketing agency under the coal control Board is desirable and feasible. There should be merchants and brokers working in between just like whiffs of legislative Assembly.

18. Brokers and merchants will work and induce the consumers to use the right type of coal for different work. The analysis of coal of all the seams would be taken in course of loading inspection and sample taking from wagons from outstand."

20. It will be the duty of the loading inspection sub-committee, the brokers and the coal merchants to see that right type of coal is despatched by a colliery.

30. Control over Govt. Ry. coal prices and steel Co coal prices would have effect over general coal market.

33. *Re Acquisition of surface land for colliery work* under sec. 50 of the Chota-Nagpur Tenancy Act and sec. 84 of the Bengal Tenancy Act.

For the purpose of avoiding delay to acquire surface lands I suggest that the values of all surface lands on coal mines should be settled before acquirements, on requisition from colliery owners

who will desire to acquire surface lands within three years, by a special officer appointed for the purpose under the District Judge. The said officer after inspection shall inform the assessed value to the colliery owners, the superior land lords and the tenants concerned. If objected to he shall hear it and give his final decision.

The colliery owners should have power to apply direct for acquiring lands and should be given possession to immediately after application provided the owner deposits the values of the land as settled by the aforesaid officer. Appeals may be allowed in the usual course.

36. Indian coinage should be independent of sterling and there should be exchange ratio directly with sterling and dollar with the Indian coins. This would increase the prices of all the commodities in India including coal in the world market.

62. I am of opinion that not only power houses should be erected on the coalfields (to supply power not only to electrifying the Ry system and to other consuming centres but also to collieries themselves) but other industries such as cloth mills, glass works, engineering works, bricks, tiles and pottery factories etc. should be induced to open their factories at or near the coalfields. This will save coal transportation problem a great extent.

63. Gases allowed to escape by burning coking coal should in all cases be collected (and after tar recovery) can be used to drive gas engines fitted on collieries for general and factory work. On Ry and on Bus—for coal transportation, for generating electric power and for lighting & cooking purposes.

69 & 71. Till after the introduction of responsible Govt. in the centre and in provinces all powers to be assumed or enactment of any legislation for any control over coal mines should be postponed.

72. There may be a hidden coalfield on the south side of Bhojudih & Talgoria (B.N.R.) line dipping north, containing good cooking coal.

73. A financial committee should be set up under the coal central board who should be responsible for all cess taxes over the collieries and the consumers. This committee should also arrange finance to all under-capitalised coal mines.

74 & 75. I have already expressed opinion at the beginning.

A publicity officer is also necessary.

107. WRITTEN EVIDENCE OF MR. H. BANERJEE
Belgoria Dispensary,
P.O. Fulia Bayra (B. A. Rly).

QUESTIONNAIRE I.

1 Page 2—Conditions which impressed the two Committees to recommend control act, still prevail.

2. Grading & export—Para 2.

No special measure for pushing export necessary.

Para. 3. Cannot say much about other markets. But in China market people prefer selected grade coal of the Ranegunge and Jharia fields. China and Straits markets are for a long time used to Japanese, north China, Indo-China and Borneo coals which differ very much in volatile (very high percentage) contents than that of the Indian or South African coals. So it is short supply of those coals which actually installed Indian and South African coals in the Far Eastern market.

Para. 4A. In China market as well in the Straits Settlement prices as existed up to 1941 could compete with South African coals. In open coal charter, the freight rate was favourable to Calcutta, for Eastern than South African Far Eastern. In the Far Eastern markets South African coals could compete with Indian coal only when it was carried as ballast than as a regular freight.

Para. 5. F.O.R. Pit head prices in India, China, Formosa are about same and it is dearer in Borneo (because higher currency value—Dutch guilders). But pre-1941 cheaper steamer freight from China coast to China ports and Strait Settlement were the chief factors in higher volume of sales.

Para. 8. Make it compulsory.

Para. 9. Rupee being recognised world currency it makes no difference so long as it is pegged to English.

IV Railway Facilities.

Para. 13. The numbers of rolling stocks and wagons specially during the war period proved much below requirements. An actual and speedy addition by local mfg. and imports is only remedy.

Para. 29—Very meagre.

Use of mechanical loading at collieries should be made compulsory which will save idle wagon hours. I do not know if roofs on hinges with locks something like that used in the automobile for engine or steamer-batch cover could be introduced in covered wagons. These may help solve mechanical loading and unloading problem as well theft on way.

Para. 2—Seasonal rates for 2nd half year should be desirable. It can be introduced as a trial measure.

As mine labour is mostly agrarian a similar seasonal increase in pay for 2nd half year may also induce them to remain at the mines.

Time at my disposal being very limited I have not yet been able to go through the 2nd set of questionnaire but should I be called for oral evidence I may be able to attend such meeting.

108. WRITTEN EVIDENCE SENT IN BY DR. H. D. SEN, IMPERIAL INSTITUTE OF SUGAR TECHNOLOGY, CAWNPORE.

1. Control of the Industry.

As regards the control of Coal Industry a good deal of Government control is necessary re: prices and distribution. Although Nationalisation of

Coal Industry should be the ultimate goal. the application of the principle should be gradual and based on the experience gained on the effects of Nationalisation of the British Coal Industry.

Ownership and Management.—(II, 10, p2). In the event of the state acquiring mineral rights in coal, the system of private enterprise should continue but the State should exercise effective control over production, distribution and marketing.

The levy of cess.—for (a) stowing or other protective measures, (b) for effective prevention of spreading of fire or inundation by water, (c) research connected with safety in mines, as carried out by the Coal Mines Stowing Board and the proposed Fuel Research Institute are moved in the right direction and should continue to function. The control by the State over methods of extraction, first working, depillaring, rotation and isolation of working, dimension and position of barriers, measures to extinguish and circumscribe fires in closed down mines, treatment of abandoned mines, should still prevail. The working of the Coal Mining Stowing Board and Coal Mines Board may, however, be placed under one central authority as the proposed Coal Conservation Board.

Grading and Exports.—(Q. 1, Sec. II/2). In view of the vast plans for industrial development, which must of necessity make an increased call on the coal resource of the land, the emphasis laid on the coal export trade does not retain as much validity as recommended by the Indian Coal Committee 1925. Hence such conditions as monetary concessions in respect of exporting coal to foreign ports should be limited to a quota fixed after adjusting for the internal consumption based on the possible requirements of the country. As a matter of fact there should be a high tariff wall so far foreign exports are concerned. On the other hand freight concessions for internal transport to industrial sites should be encouraged so that coal may be supplied at a cheap rate. (e.g. to power houses for electrification).

Grading of coal seams (ref. 7) or more accurately of sections of coal seams should be continued as under Coal Grading Act. Grading of coal for internal market is very desirable (ref. 8). It should be made compulsory.

Railway facilities.—Industrial development in this country would require adequate transport facilities to move the vastly increased quantities of coal. Lack of transport has always been a handicap to raising and distribution of coal in India. It is also dependent of Railway traffic. The busiest time for Railway coincides with the best raising months at the collieries. Hence for obtaining effective facilities for coal movement the Railway will have to provide adequate number of wagons and trucks. Financial assistance from the Coal Committee may be necessary to achieve the end in view.

Coal mining and stowing.—(ref. Q. 1. Sec. VII, 31). Coal mines in India are almost universally worked by Board and Pillar method. This consists in driving tunnels, technically called 'galleries', along and across the extension of the coal

seam, 'usually these tunnels are driven 40' apart towards the inclination of coal seam called 'dip galleries' and those driven along its horizontal extensives called 'level galleries'. Particular dip galleries which are used for haulage of coal or as the main working roads for the miners are called main galleries. In the first stage of working of coal mine due to the construction of so many galleries the coal seam becomes subdivided into so many coal cubes, which are 40' × 40' × 10' high. These coal blocks of a size of 40' × 40' are called 'coal pillars'. During the first stage of working about 40% of coal, extracting 60% of coal, remains in pillars the drawing of coal from these pillars marks the second stage of working of the coal mines, called 'depillaring stage'. Most of the coal is extracted at this stage and 20% is left behind in the mines. To minimise accidents and encourage conservation of coal, Govt. of India introduced the voluntary Sand Stowing Act. Sand stowing consists of filling up of the empty spaces created by extraction of coal bit by sand. The filling up of empty spaces and extraction of coal goes hand in hand and in this way sudden collapses becomes impossible, danger to life minimised and coal extraction goes hand in hand. It is possible to extract as much as 90% of coal from a seam by judicious sand stowing.

When the overburden is soft, coal seams are quarried and technically speaking seams are worked by 'open cast method'. As long as the thickness of the overburden is not more than that of coal seam, quarrying remains economical and it costs less than underground mining of coal.

Sand stowing is an useful practice and has prolonged the life of coal seam and should be continued and enforced stowing should be enacted by legislation for safety.

2. *Labour.* (I, VIII, 40). A settled and contented labour force is an essential foundation for a stabilised industry. It is only necessary to make the terms and living conditions on the collieries sufficiently attractive so that the miners may come to stay. First class housing facilities, high standard of wages, provident fund, insurance contributions, provision for children's education, workmen's compensation allowances, bonus etc. may be introduced.

3. *Railway coal requirements.*—(ref. Q. 1, sec. VII, p. 4). The coal used on Indian Railways is about 10 million tons a year, which approximates to 1/3rd the total annual coal raising capacity in India. 1/5th of the fuel is not doing any useful work, as firing up, waiting for trains, standing at sidings, delays at terminals and waiting at ash pits. Remaining 4/5ths is used for hauling trains. Out of these 70% again 5% is applied for raising steam and the rest goes as hot gas etc. Out of 70%, 5% is lost by radiation, 6% in air pumps and blowers and the remaining 50% goes to the cylinders, 52% of that goes passes out as exhaust steam, leaving 7% only for work at the drawbar and even out of this 1% is used for friction. Any effort to reduce even 1% of the various losses per year would show a saving of 100,000 tons of coal per year. To conserve the coal reserves of the country a judicious

blending of high quality coal with a certain percentage, say 20%, of inferior coal (high ash percent) is suggested.

Production of Coal

The production of coal according to Provinces varied from 21, 174, 029 tons in 1924 to 28,342,906 tons in 1938. The Gondwana Coalfields in India (Bengal, Bihar, Central India, C.P., Hyderabad State, Orissa and Eastern State) produce 98% of Indian coal. Chatterji, N. N., in his presidential address to the Geological section of 32nd Indian Science Congress, Nagpur, mentions that Indian total reserve of Gondwana coal of grades up to 1' thickness and up to a depth of about 2,000 feet comes to 60,000 million long tons. As mining is not practicable with less than 4' thick seams the workable total reserve is at once reduced to 20,000 million tons of coal having not more than 25 per cent ash. The total reserve of tertiary coal comes to 2,300 million tons approximately. Coal is the cheapest in India. India's coal is at present mostly used for steam raising and as domestic fuel. It is totally forgotten in India that coal is immensely valuable chemical substance which only a primitive industrial civilisation would treat as fuel (D. L. Hodgrove). A very small proportion of coal (about 5 million tons) is coked in order to supply necessary coke to blast furnaces at Jamshedpur, Kulti and Burnpur. There are Gas Supply Companies in bigger towns in India like Calcutta and Bombay, which consume a very small quantity for their gas factories. The metallurgical hard coke is partly prepared by metallurgical companies themselves. Large supplies are also obtained from coke ovens situated in the coalfields. It is unfortunate that although iron ore reserves are sufficient to meet country's demands for many centuries and it is admitted that the known reserve of extractable high grade metallurgical coal is only 800 million tons, under the present market conditions of coal it is mostly metallurgical coal that is burnt in boilers and various purposes for which metallurgical coal should not be used. If the consumption of coking coal continues in this way famine for metallurgical coal will be the inevitable issue.

The coal fields contain an enormous quantity of excellent coking coal of inferior quality (high ash content) as found in for instance, in Jharia coal fields, make the finest domestic coke is manufactured in the open and thereby crores of rupees worth of by-products are lost to the country.

Conservation of coal (Q. 2, III and IV).

There should be a systematic planning as regards conservation of coal.

1. High grade good coking coal, cal. value 7600.; ash content less than 25%.
2. Low grade coking cal, coal value 6000-4000; ash content more than 25%.
3. Coal Dust.

Coal dust should only be used as fuel. It may be used as pulverised or colloidal coal.

Blending of coal.—To conserve high quality coal a certain percentage of, say up to 20% of the inferior coal (high ash content may be mixed

with superior coal). Some proprietary materials, e.g., oil sludge, used lubricating oils etc. may be advantageous, as it not only reduces the loss of fine coal cinders but also diminishes clinkering by promoting more thorough combustion.

Briquetting.—It is well known that a great amount of coal slack or dust is produced at the collieries as well as in the course of transit. A suitable cheap method may be evolved for making briquettes for with admixture of oil slag, molasses or tar. Suitable methods for making briquettes for use in sugar factories by incorporating coal dust with bagasse, molasses and filter-press cake. The formation of clinker by exclusive use of bagasse has thus been obviated.

(3) Conservation of ammonia and tar

By the existing method of open burning of coal to produce soft coke, the valuable by-products are lost. The aim should be primarily to conserve the tar and ammonia. There should be legislation to the effect that high and low grade coking coal should be burnt in coke ovens, the volatile gases being bubbled through scrubbers to intercept ammonia, tar and pyroligneous acid. For this purpose every coal mine should have a coke oven plant and the tar, pyroligneous acid and ammonium sulphate handed over to a central authority for further processing. The Govt. may then distribute the tar to benzol recovery factories. A ring of tar distillation plants may be set up in different zones for further processing of tar for fractionation into benzol, light and heavy oils, separation of carbolic acid, anthracene oils and creosote and finally pitch. Distribution of tar should be under Govt. control and not entrusted to Tar Association as at present. An economic process has been evolved by the writer for manufacturing molasses tar, a road surfacing material made by resinification of molasses, coal tar in presence of acid and alkali catalyst. Difficulty has been experienced in obtaining tar or cuts at an economic price from tar distillation as the tar is at present a monopoly of the Tar Association. The existing difficulties should be removed. It was computed that if the whole of the output of molasses from the sugar factories are utilised and coal tar made available at a cheap rate 6870 miles of good road 21' broad may be constructed every year. The tar distillation products would be helpful in stabilising dye industry in India.

(coke ovens process)

Even by this process the gas evolved is lost and some method must be evolved to utilise it. The best method would be to supply coal to gas plants in big towns. A chain of these plants may be installed and gas instead of coal may be used for the industries. Clean work is ensured by gas heating of furnaces, particularly in glass works, brick kilns etc.

Hydrogenation.—The conversion of coal into oil has been known for a considerable time. Researches on the conversion of butyl alcohol into high octane fuel has been successfully carried out with high yields by the writer at the Imperial Institute of Sugar Technology, butyl alcohol being obtained from molasses by an economic biochemical process involving anaerobic ferment-

tation with a strain of *Clostridium acetobutyli*. By this process butyl alcohol is converted into an olefine butene, which is eventually polymerised to gasoline. The hydrogenation of coal gives rise to olefines, which are then converted into liquid fuel. The effect of high pressure polymerisation requires further study.

The Coal Committee, while financing the proposed Fuel Research Institute, should also provide funds for research grants to other centres, where investigations on the utilisation of by-products are being carried out.

A formation of a by-products utilisation Committee under the Indian Coal Committee to formulate measures and render effective the policy of conservation of by-products as tar, ammonia, pyroligneous acid, utilisation of gases etc. Steps taken in this direction will lead to the stabilisation of manure, solvent and dye industries and also go a great way to intensify development of roads in India.

109. WRITTEN EVIDENCE OF MR. TEJ BHAN MALHOTRA, INDIAN SCHOOL OF MINES, DHANBAD

QUESTIONNAIRE II

10. I advocate State ownership and control of all Coal Mines.

To answer correctly the question whether Coal Mines should be nationalised or not, we should consider what we expect from our Coal Resources and in what way our expectations can be fulfilled.

Our Coal Resources should be exploited in such a way that

- (i) the country gets the maximum advantage out of them,
- (ii) the wastage in working is the minimum,
- (iii) the work is done efficiently,
- (iv) the wages of labour are such that they can have a reasonably good standard of life—good, food, clothing, housing, education, medical aid and some leisure.

The Coal Industry in India so far has been in private hands. Have we got the above-mentioned things from it? Most of the profits of Coal Producing Companies have gone to foreign lands; the wastage in working is probably the maximum in the world; the efficiency of work is the minimum in the world (as seen from the output per person employed), and the wages of labour are hopelessly inadequate—the miner gets neither good food, nor sufficient clothing nor proper housing. Education facilities are almost zero.

The next question that arises is this—Is there any probability of things getting better now, if the Industry is left in private hand?

As before the greater percentage of profit of Coal Companies will go out of the country. As regards wastage in working, conditions in Jharia field, and also in Raniganj field are at present such — with thick seams, small thickness of strata between seams, a large amount of coal standing in pillars, and fires existing in various

seams—that the Indian Coal Mining Industry cannot be expected to deal with all these effectively. Scientific mining may require a low-grade coal to be worked first from an area, and a high-grade coal afterwards, if the low-grade coal is not to be lost for ever. Market conditions may require the opposite. Private industry cannot be expected to follow proper scientific mining methods in such cases—in fact it cannot do it, work as it does primarily for the sake of profit. Dr. Krishnan & (the late) Mr. Nag have dealt with this problem in their supplementary note to the Coal Committee Report of 1937.

As for increasing the efficiency of labour, and improving its standard of life, it requires real sympathy for the labour—and of this the industry has shown an utter lack so far, and I don't expect the efficiency or the condition of labour to improve under the present system.

The only alternative left is for the State to acquire all mineral rights and mines.

14. The output of coal mining labour can be improved in the following ways:

- (i) By giving general education to miners to develop their intelligence.
- (ii) By giving miners instructions in the technique of mining.
- (iii) Better supervision in mines by properly qualified executive staff. The staff should be able to introduce new and efficient methods of mining.
- (iv) By mechanising the mines.

16. The production of coal can be increased by

- (i) Mechanisation, if coal mining machinery is available.
- (ii) Making the supervisory staff (Manager, under-manager, Overman, Sirdar) directly interested in increased output, by paying them additional bonus on raisings.
- (iii) By tapping new or relatively undeveloped fields.

The demand of coal can be reduced by encouraging proper utilisation of coal by various consumers, so that there is as little wastage as possible.

17. The Government should form a Central Coal Distribution Board having under it a Coal Utilization Council. The Utilization Council will give technical advice to consumers on the type of coal best suited for their purpose. If on consideration of relevant data, the Government decide to restrict the use of certain types of coal to certain consumers only, it may do so. But subject only to this reservation, the consumer should be supplied with the coal which is most economical for his purpose. Bigger consumers will be supplied directly by branches of the Central Distribution Board; for coal for domestic purposes local agents may be appointed.

The Price of coal will be the cost of its production plus something that may be desired to be paid to the General Revenues of the State. This additional sum, of course, will depend upon capacity of the consumers.

110. Oral evidence of Sir Ardeshir Dalal, of m/s the Tata Iron and Steel Co., Ltd.

Question.—In view of the proposed constitutional changes, do you consider it feasible from your knowledge of administrative machinery to secure a co-ordinated development of the mineral industries in this country, particularly coal, and if so, is it desirable to have some sort of a division of responsibility between the Centre and the Provinces?

Answer.—Purely from the economic point of view, I should consider it very desirable that the responsibility should rest with the Centre. But the situation in the political field today is such that we do not know what kind of Centre we are going to have. So, pending further clarification of the political position, it is difficult to generalise, except that looking at it from the point of view of purely mineral industries, I very much like centralisation.

Question.—In the matter of development of the coal industry, we can classify under a few heads important matters pertaining to the industry, e.g. the grant of leases, the question of mineral rights and the regulation of mining practices and of safety.

Answer.—All these must, to my mind, be Central subjects.

Question.—Then there are production, distribution and prices.

Answer.—Some kind of centralised or co-ordinated policy for the whole country will be desirable. But you talk about something being desirable and something feasible, but I doubt the feasibility of them.

Question.—There are other matters, labour wages, education, sanitation, communications in the coalfields, research and so on. Would you consider that these matters can be delegated to Provincial authorities with a co-ordinating agency?

Answer.—Exactly, if you have a co-ordinating authority, the actual administration of most of these things will have to be done by the Provinces. But even in the matter of labour, certainly in the matter of research, there should be a Central policy, and a co-ordinating agency, leaving the actual day-to-day management to the Provinces.

Question.—It has been put to us that in the matter of distribution and production and in the matter of labour, if there is one Department responsible for the production and distribution on the one hand and labour on the other, there is a possibility of conflict of interests.

Answer.—There is no doubt in my mind that the whole thing should be under one Minister. He may have two sections, even two departments as understood in Government.

Question.—Your Co. have stated that the acquisition of mineral properties by consumer interests like Railways or the Steel companies or the Cement people has been by and large beneficial to the industry. Would you agree that this acquisition can be taken to the extent that it can become an unhealthy factor?

Answer.—As things are at present, I am in agreement with the views expressed by the Steel Co. on this question. It is quite possible that consumer interests may practically monopolise the coal they require; that might be very unhealthy, but as things are, I think it is beneficial than otherwise.

Question.—Would you agree that some sort of a limit be placed on the acquisition of such interests by consumer groups?

Answer.—I do not see any necessity for laying down any kind of arbitrary limit. I do not know whether there is such a tendency at the present moment; whether consumer interests like Railways or the Steel companies want to acquire more property than is good for the industry.

Question.—There is a possibility of the steel interests acquiring all the coking properties and thus preventing the establishment of a 3rd or 4th steel company.

Answer.—If such things are done, Government should interfere. Such things are against the general interest of the country; all the coking coal that is available in the country should be reserved for the metallurgical industry.

Question.—What are your views on the Managing Agency system?

Answer.—In reference to the coal industry, in spite of certain drawbacks—and there are a number of them—on the whole, I am of the opinion that the managing agency system has done more good than harm.

Question.—To the extent finance and technical knowledge are provided by the State, to that extent the worth of the managing agent becomes.....

Answer.—That is quite possible. But if you see the conditions of smaller collieries provided with inadequate finance as compared with larger collieries run by managing agents with adequate finance, you will see the benefit of the managing agency system.

Question.—In the light of the greater initiative now being displayed by the State, would you consider a further large-scale development in our industries should take place along Managing Agency lines?

Answer.—What alternative form of development would you suggest? If you are thinking of something in the nature of greater State participation or State control, then the problem is

perhaps more easily approached from other directions than entirely from the point of view of the Managing Agency system.

Question.—In respect of basic consumer interests like steel and railways, would you advocate a sort of complete self-sufficiency in the matter of supply of coal?

Answer.—Well, if you take railways and the steel companies, that means more than 50 per cent of the total coal in the country. Under very strict supervision and control of Government, it does not seem that such a thing would be undesirable. I must say, however, that I have not devoted any special consideration to this problem.

Question.—If the big consumer interests like steel companies would need to take from the market a certain proportion of their requirements year after year, are there any safeguards short of complete price control which you would suggest for curbing the tendencies of these interests to influence the market one way or the other? There is much evidence marshalled before us in order to show that the activities of the Railway Board in the matter of their coal purchase policy adversely affected the stability of the market.

Answer.—It had in the past, according to the coal interests, an adverse influence on their interests and they contended that they had to run uneconomically, to the general detriment of their development. Without pronouncing an opinion one way or the other, I am certainly in favour of price control.

Question.—Would any other control be adequate, short of price control?

Answer.—Why short of price control? Why not control prices? No other measure would be so effective.

Question.—You are aware of the insufficiency of reserves in respect of certain types of coal and it has been suggested that there is an overwhelming case for regulating the output and the distribution of such reserves of coal. Would you agree that this restriction should first be applied to the coal interests of such consumers?

Answer.—If it has to be done in the interests of such consumers, I think they should have priority in that respect. But let us consider the question very carefully. I think what has been suggested is that seams from 10 to 18 should be conserved for the metallurgical industry, because they are being very rapidly exhausted and they are very valuable from the point of view of blending for the future purposes of making metallurgical coke. Now, I am not an expert on the point, but I am informed that even today, the production of 12, 13, 14A, 17 and 18 seams does not exceed, say, about 3 million tons which would be required even today for the steel industry.

Question.—In your opinion, only the Jharia seams need to be conserved or should care be taken in regard to.....

Answer.—That is subject to further consideration. In my opinion, even the lower seams require some kind of conservation, but what I think the steel company has made out in their evidence is that these seams in particular which are very valuable from the metallurgical point of view, from the point of view of blending for the future purpose of making metallurgical coke, that these are the seams which primarily require conservation and the total output from such seams even today does not exceed perhaps 3 million tons. I am speaking subject to correction.

Question.—So, will this be your opinion that there is no need to curtail the output of the metallurgical coal in this country and that what is needed is that that output should only be used by the steel works?

Answer.—Those particular seams should certainly be reserved for the steel works—seams from 10 to 18—and for any other industry which requires for its own technical purposes coal of that character.

Question.—Assuming that these seams today turn out or put on the market 6 million tons, would you agree that there should be some sort of curtailment and that this curtailment should first apply to collieries owned by the steel company?

Answer.—I think there is some logic in that.

Question.—Taking the argument further, if curtailment of production has to be enforced in respect of certain companies which do not belong to the steel company but are privately owned by other interests, would there be a case for some sort of compensation to these companies.

Answer.—Yes, if it involved them in locking up their capital and productivity or further expenditure on pumping, conservation and so on.

Question.—It has been suggested that this compensation should be borne by the steel companies.

Answer.—I do not think so. It is a question of general interests of the country as a whole.

Question.—Looking at the problem from another angle, there has been a waste not only in the use of metallurgical coal but also in its extraction. Attempts will need to be made to prevent waste in use as well as in extraction. If we are unable to prevent this waste in present circumstances, would you suggest that the State should step in and acquire such properties?

Answer.—That is a hypothetical question. If you find that in the general interests of the country, you cannot prevent waste except by

measures like that of acquiring property, I should not hesitate to acquire the property.

Question.—In that event and if the acquisition becomes fairly widespread, will the steel companies be prepared to throw in their properties?

Answer.—I think so. They should all be treated on the same footing.

Question.—You are in favour of control over prices of coal; do you think there should be control over distribution?

Answer.—Personally, I am very much in favour of control over distribution.

Question.—You have expressed yourself in favour of two items of control, over price and distribution. In regard to other aspects of the coal industry, would you like State control to be extended, say by nationalisation?

Answer.—My Co. has expressed itself in support of control in answer to your questionaire. I may say that, in general, I agree with that.

Question.—You know generally the problem of smaller collieries. Would you advocate State acquisition of smaller collieries?

Answer.—If there is no other remedy. I would advocate State acquisition of small collieries. I am not afraid of nationalisation as such. If circumstances are such that nationalisation is necessary, then nationalisation will have to be resorted to; but as far as possible, you should avoid it. Even if the State acquires a property, I am not in favour of its actual operation by the State. The ownership of a property is one thing and management another. Management should, as far as possible, be, in my opinion, left to technical people. I am not for State management.

Question.—What about regulating the terms of leases?

Answer.—There should be a standardised form of leases. In the past, great harm has been done to the coal industry, owing to the fact that there are very unsatisfactory leases. All these should be put right, not only in the case of future leases but in regard to existing leases also.

Question.—Even under Government rules, there is a maximum limit to the area a single individual may hold on mining lease. In the case of leased land in the Permanently Settled areas, if that limit is exceeded, what would be your suggestion?

Answer.—I may say that it was my intention that there should be a proper Mines Bureau or Mines Department created which would have the task of reconsidering all the leases etc. There

should be a Minister of Fuel and Power who would have the Mines Bureau under his control as well as the Geological Survey and other power-producing departments.

Question.—You have recommended that metallurgical coking coal should not under any circumstances be exported and further that in respect of non-coking coals export should cease so long as there is demand for coal in the country than there is supply. For India, there are certain natural markets like Burma, Singapore, Ceylone. You consider the need for conservation is so great that we should deny supplies to these markets also?

Answer.—I am very strongly of opinion that so long as India needs all the coal that it can raise for its own industrial development and expansion, coal should not be exported. I don't think non-export of coal is going to cause any international rupture with neighbours. I am all for friendly relations, but the good of the country must have precedence over other things.

Question.—Even though the total needs of these markets may not exceed a million tons?

Answer.—Even then I should not be in favour of export so long as our requirements in the future, now estimated at something like 31 or 32 million tons, are not met.

Question.—Nobody would like to export anything required in the country. But provided the Indian demand is met, there is no objection, so far as you are concerned, in principle to export being permitted?

Answer.—No.

Question.—Now, as regards the Fuel Research Institute which under your inspiration was sanctioned by the Government of India last year. In view of the emphasis you have placed on the need for very considerable research in the matter of finding the physical and chemical properties of different types of coal, is it your opinion that the very meagre manner in which the Fuel Research Institute is going to be started would serve our purpose?

Answer.—I don't quite follow what you mean by the work "meagre". When I was in the Government of India, they were quite prepared and willing to give all the financial assistance that that institute needs. It was only a question of administrative difficulties.

Question.—It may have happened after your retirement from the Council that the funds of the Fuel Research Institute, as originally planned, have been drastically cut.

Answer.—I am very sorry to learn that. But the general intention of the Government of India was to spend whatever money could profitably be spent.

Question.—You will agree it is of great importance to the coal industry that an exhaustive analysis of the various types of coal is made within the shortest time possible?

Answer.—Yes, certainly.

Question.—Finally, I would like you to agree with or contradict the allegations which have been made by certain parties that the steel companies are probably the most fastidious consumers of coal?

Answer.—I deny that. The steel company naturally consumes the coal which is required for the purpose of making its steel, but there is no question of such fastidiousness as to hamper general industry. I think that is more or less a technical question which has been gone into in very great detail by our technical edivence and I think that technical evidence should satisfy you that we try and use in our own interest all the coal of inferior grades we can utilise.

Question.—That has been your policy for many years?

Answer.—Always. We have been blending, washing and by every method of research utilising lower grades of coal.

111. WRITTEN EVIDENCE OF NAWAB AHSAN YAR JUNG BAHADUR OF HYDERABAD.

QUESTIONNAIRE I.

I

GENERAL :

Control of a central authority over methods of extraction etc. are absolutely necessary. It is rather disappointing that the recommendations of the 1920 committee have not been fully carried out by the Government of India.

With regard to the recommendations of the 1937 committee, it is observed that had the Government carried out the recommendations fully, there would have been less trouble and complaints during the war. The establishment of an Expert Statutory Authority on the lines suggested by the 1937 committee is bound to lead to greater progress as has been conclusively proved by the establishment of the Coal Control Board during the war.

II

GRADING AND EXPORTS :

This question is no doubt the most important commercially. Grading is necessary so as to differentiate the quality of coal required for different industries and also for conserving and reserving cakable coal for only Metallurgical purposes. Grading therefore is not only necessary for export but also for internal use.

With regard to the question of export it is not advisable to encourage export of large quantities of coal by starving our internal demands from our own industries but if there is any surplus after satisfying all the local demands coal may be exported ; otherwise it should be prohibited. with the industrial development in the postwar period, it is certain that this surplus quantity will

be so negligible as not to have any effect on the world market. Hence the question of export need not be considered at present but grading should be made compulsory and not remain merely discretionary.

III

PORT FACILITIES :

I have not the information to give a detailed reply but I should state that when surplus coal is available for export these port facilities should be provided at important Indian Ports. As the railway freights compared to sea freights are abnormally high, it will be advisable to improve and provide port facilities for the transport of coal for internal consumption to the different Indian Ports so that the industries situated in the interior may be supplied by the nearest port and not all the way by inland railways.

IV

RAILWAY FACILITIES :

Inadequate supply of wagons has been the greatest complaint. It is entirely due to the number of open wagons available at present. The Railway Authorities should try to at least double the number available as with the post-war development of industries, the requirement of coal for internal consumption alone will probably increase to more than 32 million tons in the next 5 years.

There is no doubt that considerable delay in loading at the mines takes place for want of proper sidings, loading bunkers and want of weight bridges, etc. If satisfactory facilities are provided at the collieries, the 10 hour system as recommended in 1925 will be found to be quite satisfactory. The present method of allotment of wagons is unsatisfactory and results in nothing but corruption. It should therefore be changed. The Coal Control Board should have branches in every Province and the coal requirements of the different industries of the respective Provinces should be carefully drawn up and a regular co-ordinated programme for the supply of the requirements be sent to the Railway Authorities and collieries concerned. The programme of allotment of wagons should be strictly followed. This would obviate the necessity of dealing through the subordinate staff and will stop the prevailing corruption.

The installation of weigh-bridges at every colliery should be made compulsory and the rebate of anna 1 per ton, which has been withdrawn should be allowed to collieries again so as to encourage them to instal private weigh-bridges.

The freight system in force at present has many disadvantages and there are great many complaints regarding the payment system. If the different railways adopt a system of payments by credit notes, the delays in clearing the wagons at the destination will be considerably reduced and the wagons returned expeditiously.

If mechanical loading appliances and bunkers and weigh-bridges are made compulsory in every colliery, the complaints regarding over-loading and underloading of coal wagons and also the number of open wagons required will be found to be considerably reduced as loading by mechanical means will expedite despatch. For the present covered wagons need not be provided as the capital cost will immensely increase.

The group system of railway freight rates as recommended by the 1925 committee should be introduced at once so that the cost to the consumer is reduced without causing any deterioration in the railway earnings. A special committee should be formed for considering the freight rates under the group system.

It is desirable to introduce seasonal rates for the transport of coal both by sea as well as by rail. This will encourage consumers to store sufficient quantity of coal in the slack season.

V

RAISING COSTS :

As I am not an expert in coal mining, I am not in a position to express my views in detail. But I may state that mechanisation is desirable and should be encouraged ; as with the coal at site, power can be developed at a very low cost. This will also overcome the labour scarcity trouble and reduce the raising cost considerably.

VI

RAILWAY COAL REQUIREMENTS :

The railways in India are the largest consumer and waster of coal. It is stated that more than 10 million tons are annually consumed by them. A locomotive boiler is the most inefficient as only about 4 to 5 per cent of its heat energy is utilised and the balance is wasted. They are not careful at all what grade of coal they are using and in great many instances the best cakable coal, which should be reserved for Metallurgical purposes only is used indifferently without any consideration.

The remedy lies in electrifying our Railway system as early as possible and providing power from Central Super Thermal and Hydro Stations. The policy of electrifying only the sub-urban Railways is not correct and must be changed. With the efficiency of power transmission for long distances. Railway sections up to 1,000 miles can be electrified and worked economically. It may be stated here that the U.S.S.R. has proposed a scheme for the electrification of Railway system covering over 15,000 miles.

Until such time as the Railways are electrified the only way to avoid the colossal waste of coal by the Railways is to allow them to use only a low graded coal with an ash content of 20 to 30 per cent.

It is not possible for me to state the number of locomotives existing at present and also new locomotives that may be required.

VII

STOWING :

This question is very important. The Coal Stowing Board has been working satisfactorily and it is necessary to watch for some more years before the arrangements are changed. The greatest obstacle is scarcity of labour and its high cost.

VIII

MISCELLANEOUS :

The most difficult problem to be faced at present is that of labour for the collieries. The trouble in India is entirely due to not having professional and hereditary Mines. The majority of the labour is drawn temporarily from the surrounding villages, generally Agriculturists, with the result that it is not settled and contented. It is essential therefore that the Mines after training should be made to settle down as a Mining community in the Mining Regions and should be made to be contented by providing proper housing, medical sanitation, education and recreation needs.

With regard to the acquisition of surface rights, the Section 84 of the Bengal Tenancy Act should be amended and Government should acquire the surface rights and hand it over to the collieries.

Experiments have been carried out on the briquetting of coal. The process recommended is to have large coal carbonisation plants erected at pits mouth. After carbonising the coal and obtaining all the valuable by-products the soft coke produced from non-cakable coals is to be mixed 50 : 50 with pulverised charcoal and made into briquettes suitably large for burning in the Railway locomotives. By carbonisation and mixing with charcoal the ash contents of the briquetted fuel will be considerably reduced and thereby the calorific value increased. This process is specially suitable in collieries situated in the forest areas and it is high time that this industry is established on a large scale in India.

The washing and mixing of different grades of coal has been tried with a view to produce Metallurgical coke for the Iron and Steel industries and other consumers from non-cakable coals by heating at a higher temperature a mixture of soft coke and heavy oil in the proportion of 50: 50. But the cost of metallurgical coke becomes so high that it can only be used if the Steel Industries are established at the collieries.

A Fuel Research Institute which has been implemented by the Government of India recently is an urgent necessity and it is advisable to have its branches established in all the Provinces where coal is available.

So far, not sufficient progress has been made in India for the recovery of benzol as by-product, and this can be made available if low temperature carbonisation plants are established in the coal bearing areas as suggested above. The rescue arrangements and educational facilities are not

sufficiently adequate but if proper housing, sanitation, education and recreation facilities are provided, a great deal of improvement will result.

Nationalisation of coal mines has been advocated generally, simply because the present cost of coal to the consumers is undoubtedly very high and it is not fair for any public utility coal mining company to declare such large dividend at the expense of consumers. This is the chief reason why the Labour Government of the United Kingdom has decided to nationalise the Coal Mining Industry. On the other hand, the present Government administration has to become more practical and efficient in India before it can nationalise the coal industry. What is required is to stabilise by having, as suggested above, a settled and contented Labour Force and controlling the prices of coal to an extent which does not allow more than 6% dividend for the collieries in any case. It is only by providing cheap fuel and power the targets for Postwar Development can be really achieved.

112. ORAL EVIDENCE OF SIR PADAMJI GINWALA

Question.—You have stated in your very instructive and valuable memorandum the case for electrifying certain portions of the rail track between Calcutta and Moghalsarai and Calcutta and Kharagpur. You have suggested that electrification of the railways need not necessarily be expensive from the point of view of operations. Rather you think that there will be a considerable decrease in the operating expenses of the railways. Is it just a *prima facie* conclusion.

Answer.—I have come to the conclusion that in the beginning there may be a slight increase in the running expenditure, but there is bound to be increase in traffic and also a quicker turnround in any case. Therefore, it means less rolling stock. But purely financial considerations in the matter of electrification of the railway track should not weigh. Our country is fortunate in that the main lines pass through the most densely populated parts of India. They also pass through territories which contain most of our raw materials which lend themselves to processing by electric power. Large tracts of agricultural lands are also traversed, so that if you want to electrify the agriculture, the opportunity is there. In the event of electrification of the railways through thermal units there will be over-head transmission lines, and these can be used by hydro-electric power as well.

Question.—In your calculations you have taken capital cost at Rs. 200/- per K.W. on the basis of pre-war figures. If the capital cost is actually about Rs. 450/- per K.W. at present, will that make any difference?

Answer.—If you double the cost of the plant and equipment and at the same time increase the cost of railway equipment proportionately and railway charges it will make no difference,

Question.—Is it your suggestion that the Governments of Bengal and Bihar might put up power plants in their respective provinces, and the Railway authority need only take electricity from them without incurring capital expenditure.

Answer.—Yes, they can do that. If a thermal unit is installed at the Western end of the Bihar coalfields it could electrify the railway track up to Moghalsarai.

Question.—That would require an understanding between the Governments of Bengal and Bihar on one hand and the Railway Board on the other. But in view of the Damodar hydro-electric project, do you expect any interest on the part of the Provincial Governments?

Answer.—I had a talk with the Railway authorities. It has been put to them that hydro-electricity will be cheaper, which, in my opinion, it is not going to be, I have seen their estimate and the capital expenditure is at least 3 times that stated. Further Hydro-electric power stations cannot be built in-bits. Therefore you have to create a demand for electricity and wait until then. Thermal electricity, apart from its being cheaper from the point of view of capital expenditure, lends itself to more flexibility, and permits of more and more units being added as required.

Question.—When you were a Member of the Tariff Board you examined certain aspects of the coal industry from the point of view of exports. What is your opinion to-day?

Answer.—I was not in favour of exports. We have not enough coal for our own use. Government should take steps to prevent export of any coal.

Question.—What is your opinion about the acquisition of mineral rights by the State?

Answer.—I am personally in favour of Government acquiring all the mineral rights. To start with, the State should acquire all the rights and allow those collieries which are properly organised to work under State control. If they do not make good use of this chance, direct operation of the mines by the State should be resorted to.

Question.—In pursuance of the policy of conservation of metallurgical coal, a situation might arise when a drastic curtailment of production or even closing down of some collieries might be involved. In such an event, do you consider that the first effect of curtailment should be borne by the collieries owned by the steel companies?

Answer.—I do not think the question of curtailment immediately arises because the demand is expanding. The Iron & Steel Panel has recommended that there should be more steel works put up, each with a capacity of 500,000 tons ingots per annum, but so designed as to double the output within the next 5 years. If these proposals are acted upon, another 3 to 4 million tons of coking coal would be required. The steel expansion, in my opinion, cannot stop there, and in the next 15 years provision for about 20 million tons, more or less of actual coking quality for metallurgical purposes, would have to be made.

The American Cynade Co. and the Chemical Construction Corporation have developed a process by which they can coke any coal which has caking qualities, and they claim that the coke is harder. If such a process cannot be applied to Indian coals, there is no other alternative but to stop the supply of coking coal for uses other than for metallurgical purposes.

Question.—This control over the provision of the use of metallurgical coal involves interference with the right of individual consumers, and to enforce this policy it may be that all the collieries producing metallurgical coal may have to be brought within a pool. Do you think there would be any serious objection from the steel companies to their collieries being put in the pool?

Answer.—My personal view is that they must be put into the pool. I agree that steel companies should not be permitted to go on acquiring more and more properties of coal bearing lands. On the contrary, the State must acquire all the mines belonging to the two major steel companies. These are national assets.

Question.—Apart from metallurgical coal, do you think there is need for regulating the use of coal for other industries?

Answer.—Modern boilers are so designed that they can burn any coal. My opinion is that no coal should be allowed to be used in small installations within 150 miles of any coal mine for power raising. Apart from railway electrification, you instal a power station in the Raniganj coalfield for 200 miles on one side and 200 miles on the other, and you feed industries in this area from these power stations. You can produce that power in the coalfields with any coal that you can get.

Question.—Are you not impressed by the very high cost of distribution of electricity? I am given to understand that while setting up the new Mulajore power station in Calcutta 10 years ago, the question of installing a power station nearer the coalfields was considered. After expert investigation, it was decided that it would be more economical to set up the station at Calcutta.

Answer.—At that time coal was very cheap and we did not understand the economics of coal. In the last 20 years boilers have been so perfected that they can burn any coal unlike the boilers used then in Calcutta. The question of reserving the better quality of coal has now become far more important than before, and it would be cheaper, in my opinion, to generate electricity in the coalfield and bring it down to Calcutta.

Question.—Is it your opinion that we should try to utilise our coal resources in the fashion that would suit every industry, and to enforce that regulation should there be some controlling authority?

Answer.—Certainly. The inferior coals in the coalfields should be used for electrification purposes. The coking coal should be reserved for the metallurgical industry, and consumption of the superior classes of steam coal should be economised.

Question.—Do you think that there could be a legitimate division of responsibility for coal between the Centre and the Provinces?

Answer.—It is an All-India question. Coal and minerals should be under the Centre. There must be a special Member in charge of Fuel & Power. Problems like labour, medical facilities, education etc. may, with judiciousness, be given over to the Provinces under a co-ordinated scheme, provided it is all under Central control.

Question.—What are your comments on the present methods of making soft coke?

Answer.—From what I have seen, there is no more wicked way of making soft coke. It destroys bye-products. Taking gases alone, you would get approximately three times more hydrogen by proper methods. Annually about one million tons of coal is wasted in this way. From this 1 million tons, 300,000 tons of sulphate of ammonia could be recovered. Again, twice the quantity of tar that is now produced by coke oven practice can be produced by improved methods. My suggestion is that instead of allowing soft coke to be manufactured in the way that it being done at present, two or three big plants should be installed in the coalfields to carbonise the coal by the low temperature carbonisation process. I would further suggest that no coal should be allowed to leave the coalfields without being carbonised first. The soft coke can be used in Lancashire boilers and for domestic purposes. The only agency that could do this is the Government, because it requires a very large investment for the main process.

113. ORAL EVIDENCE OF SIR S.N. ROY, K.C.I.E.,
C.S.I., COAL COMMISSIONER, CALCUTTA.

Question.—You have studied the operation of the Coal Control Order for the last 3 or 4 years. This Control relates to production, price and distribution. It is no doubt an emergency measure, but if it is decided that some such control should continue in the future could you give us your ideas on the division of responsibility between the Centre and the Provinces?

Answer.—I cannot conceive of any effective Control over coal production and distribution save by the Centre. Some people dispute the necessity for continuing control but if it is to remain there can be no doubt that it should remain with the Centre. In fact, my impression is that the Provincial Governments also realise that for control to be effective, it must be in the hands of the Centre.

Question.—Is it not possible to conceive of a situation where matters of policy may be directed by the Centre, but the execution of that policy may be left to individual Provinces?

Answer.—The position in India is peculiar by reason of the fact that the coalfields are all concentrated in one of two particular areas. The Bengal and Bihar fields provide the whole of the best quality coal, the other coal producing area is the C.P. If the Provinces are allowed a free

hand in the execution of policy, even though that policy may be laid down by the Centre, there will be a constant tendency on their part to work the control in such a way that they may get the best out of it.

Question.—You no doubt appreciate that transport is the key to any further development of the coal industry in the matter of production as well as distribution, and if Communications or Transport is going to be a Central responsibility, it will be very difficult for the Provinces individually to exercise effectively any of the control devised?

Answer.—Undoubtedly. On that account and even if all the transport required can be made available, I should be averse to the Provinces being vested with any executive control.

Question.—In regard to the future requirements of the country, the growing demand for coal and the necessity of planning in a proper manner for further production in the various coalfields, do you consider that your administrative set up today is an ideal one?

Answer.—Far from it. If control were to be made really effective, there would have to be a large expansion of my office, especially so as long as present difficulties in connection with wagon supplies and the output of coal remain. We should be in a position to decide ourselves when difficulties arise, as they do almost daily in present conditions, who to cut, what coals to substitute for better qualities which industries demand but which cannot be produced or moved. We need more supervision over stocks, more accurate statistical data which are important from the point of view of production as well as distribution. We have started on this, but there is a great deal still to be done. We have a nucleus of experts on coal technology in our office who are supposed to go round and advise on the kind of coal that a particular industry can use. But with the staff at our disposal, we are able to make very little progress.

Question.—In view of the admitted shortages of coal in the country, what sort of methods would you suggest for securing increased production?

Answer. One of the fundamental factors about production is a steady supply of labour. Labour in the coalfields is migratory and the first need is to obtain a supply of stable labour who will work at least 5 days in the week. Even today when coal prices are good, I am not sure that all the collieries are doing all they can to keep their labour from drifting away. I say this because in the railway collieries the drop in the labour supply is considerably smaller than that in other collieries. Then there is the question of wages. The standard of life of the colliery worker has not kept pace with the increase of wages with the result that any substantial increase in wages brings about a slackening of work. That applies in a measure to colliery labour in other countries also but not in the same degree as in India. A mere increase in wages is not a solution unless the standard of life can be raised also and that is a long term business. Even Gorakhpur labour which has been imported into the coalfields for

some time and are paid at much higher rates do not show any inclination to stay for long periods. One of the explanations given is that they earn so much money that they do not like to come back to the mines until they have had a few month rest. If we embark on a long-term policy of better housing, more education and have a nucleus of non-agricultural labour recruited who can be relied upon to keep things going, a great improvement might be effected. At the present time it is desirable that any increase in emoluments should be in the form of consumers goods which are scarce and that increases of money wages should, if granted, be linked to greater production.

Question.—What other factors should be given priority in respect of increasing the production of coal apart from labour? Transport position?

Answer.—The transport position needs urgent attention. We are in constant difficulties owing to restrictions at the various junction points and restrictions in particular directions even when the wagon supply is more or less up to our requirements. We need 1,050 wagons a day up-country. For months we have fallen short every day by 150 to 200 wagons. That affects distribution which in turn affects production.

Question.—From our knowledge of the War Transport Department during the period of war, could you tell us if this sort of mal-distribution in transport is due to the stress of war, leading to bad operations, or are there any physical deficiencies in the rolling stocks?

Answer.—There were physical deficiencies in rolling stock during the war. But difficulties arise from the defective lay-out of the railway system. The layout of lines should be such that wagons could move freely in every direction. The existing layout was on the basis of distribution of much more limited quantities than are now required. Difficulties also arise from the fragmentation of collieries which prevents the placement of wagons in adequate numbers for all the pits in a siding.

Question.—There have been a very large number of collieries opened up in the last 3/4 years. Could you tell us something about the policy which governs the sanction to the opening up of new collieries?

Answer.—The broad considerations for withholding sanctions are whether the opening up of new collieries will lead to uneconomic working or whether the transport position in a particular area is such that more coal cannot be moved from that area or whether the opening up of a colliery would mean such fragmentation of a colliery that it would militate against satisfactory coal extraction. Powers have been vested in the D.C.C.(P) to refuse or grant sanction to the opening of new collieries under the Coal Control Order. He usually consults me in cases of serious difficulty.

Question.—Are you of the opinion that this power vested in one Department or one individual could be expected to be efficiently exercised in the interests of the industry?

Answer.—I think it can be efficiently exercised but I have my doubts whether it gives satisfaction to all concerned.

Question.—From the point of view of larger considerations, do you think it is wiser to associate the industry in such matters?

Answer.—If the industry were united— unfortunately it is divided against itself— there would be no objection to the industry being associated in the manner proposed.

Question.—Do you agree that the extreme forms of fragmentation which have taken place in certain parts of the coalfields have not only resulted in wasteful extraction but have been obstacles in the way of scientific development of the industry?

Answer.—I am definitely of this opinion, and this view has also been expressed by the Floud Commission.

Question.—Do you agree that the only way to rectify the deficiencies in the matter of fragmentation in its proper sense is acquisition of mineral rights by the State? That again is one of the recommendations of the Floud Commission.

Answer.—May I point out that the recommendation of the Floud Commission is that the royalty rights, not the mineral rights, should be acquired. I am all in favour of the acquisition of royalty rights by the State. I think that will go a long way towards getting rid of inefficient working, fragmentation and so forth. The Bengal Government have in contemplation a bill on the basis of the recommendations of the Floud Commission. According to that bill, I understand not only will surface rights be acquired but sub-soil rights in virgin properties will belong to the State.

Question.—If you are of the opinion that it is within the competence of the Provincial or Central legislatures to enact suitable legislation for modifying the terms of existing leases you consider that short of acquisition of royalty rights legislation would be sufficient to rectify the existing deficiencies.

Answer.—It would be possible, without acquiring royalty rights, to take power to regulate leases, both past and future, though provision will be necessary for payment of suitable compensation. This will effect a great improvement in the existing position.

Question.—Regarding coal distribution, it has been suggested to us that control of distribution has been responsible for showing undue favours to large producers in the coal industry. Would you care to comment on this?

Answer.—This is not quite correct. What has happened from time to time is that at times of wagon shortage or when coal has had to be rushed to any point, preference has had to be given to collieries which can load full rakes and half rakes rapidly and efficiently. If the threatened Railway strike had taken place, for example, the best way of moving supplies would have been to load rakes and half rakes at the bigger and more efficient collieries. One has to bear in mind the fact that large colliery undertakings are able to produce and to load more efficiently the attention they receive is not in the interests

of individual collieries but in the interests of loading and distribution of largest quantities in times of difficulty.

Question.—Have there been complaints of lack of consideration shown to small collieries in the matter of distribution?

Answer.—Indeed there have been these complaints. What small collieries would like is that, their output of lower grade coal should be absorbed by industries who are accustomed to use higher grades of coal, which are in short supply. But though some help is being given in this way it is impossible altogether to ignore the preferences of industries for particular grades of coal when such coal is available. Nor, from the transport point of view is it desirable to send low grade coal over long distances if it can be avoided. It would be wasteful of transport to do so.

Question.—If, therefore, there was a controlled regulation of the use of coal, i.e. use of different types of coal for different industries, that should automatically solve the problem of the smaller collieries in the matter of distribution?

Answer.—Yes. Unless you are reasonably sure from reports of experts that a particular industry can be made to use an inferior grade of coal, without serious loss of efficiency you cannot force it upon the industry if better coal is available.

Question.—If conservation in use compels us, owing to our shortage of good quality coal, to make this regulation necessary, would it not solve the problem, provided production is likewise coordinated?

Answer.—If you know what grade of coal each industry can use and what are the grades of coal you have, then controlled regulation can be successfully applied.

Question.—Do I correctly sum up your attitude with regard to the question of control that you are in favour of control being maintained to the minimum essential extent necessary in the public interest?

Answer.—I am in favour of control being maintained so long as there is any shortage of coal. If there is plenty of coal to meet the demand, I should be averse to any control at all, as I still believe that the best method of supplying the requirements of consumers is to let supply and demand have full play.

Question.—A statement has been made to us that, apart from the difficulties regarding wagon supplies, there is, on the part of the railways, a kind of sub-conscious, if not actually deliberate, preference for high rated traffic. Coal after all is low-rated, and even at bottlenecks the position is that high rated traffic is moved out while coal traffic is held up. Have you any comments on this?

Answer.—I should doubt if this is so, because in our day to day discussions with the railways we are able to get on occasions more wagons for coal at the sacrifice of high rated general goods. Moreover Railways have to carry out the orders of priority issued by the Government of India and coal has a very high priority.

MEMORANDUM ON BASIC CONDITIONS OF COLLIERY LABOUR IN RANIGUNJ AND ASANSOL SUBMITTED

By MR. BANKIM MUKHERJEE

Introduction:

The end of the war has brought sharply to the forefront the question: what role is the Indian coal industry to play in our future Industrial development, and how far is it capable, as it stands at present, of playing that role?

Every one of the different interests concerned in the industry— Government, employers, labour, and the consumer public — is equally alarmed at the existing low output of coal production and its apparent incapacity to develop in accordance with growing needs.

The war years, with their accompanying heavy demands on the coal industry, have emphasised still further the extreme instability and inadequacies of a productive system, based not only on backward technique but on miserably low standards of living of labourers. Where the opportunity provided by war conditions should have resulted in great expansion and development, we find the unpleasant reality of an annual deficit of about 6,000,000 tons.

On behalf of the only section — labour — which is unrepresented on the Coalfields Committee, we briefly offer the following proposals to rehabilitate the industry, with particular reference to the basic conditions of colliery labour.

These conditions have remained substantially static since they were examined and criticised in 1929 by the Royal Commission on Labour. This memorandum merely seeks to draw the Committee's attention to the urgency of a problem which has been generally recognised, without being acted upon, for the past 15 years or more. It is our main contention that further postponement of amelioration of labour conditions will inevitably prevent any solution of the general problem of *shortage, instability and low efficiency* of colliery labour.

I. Earnings.

The labour shortage experienced in the coal mines has been attributed, by both Government and employers' spokesmen, to the competition of military and war emergency constructional works, providing, it is alleged, higher wages and less arduous work. If this contention comprised the whole truth, the end of the war should automatically release a labour force adequate to run the mine at full capacity.

The fact of the matter is that the rates of wages and allowances in the mines are so low, and compare so unfavourably with those of most other major industries, that they attract workers of only the lowest efficiency and that, too, for part-time relief during the non-agricultural seasons of the year.

The income of the colliery worker in 1946 remains quite inadequate for his minimum subsistence needs.

According to the *Report of the Chief Inspector of Mines*, the average daily earnings for the Raniganj field in December, 1941 (*i.e.* pre-Dhanbad Conference) were as follows:—

		Rs.	As.	Ps.
<i>Underground</i>	Miners	0	9	2
	Loaders	0	8	0
	Skilled Labour	0	10	6
	Unskilled	0	7	3
<i>Surface</i>	Skilled	0	9	6
	Unskilled	0	6	6

Taking -/9/- as an approximate average (by no means the minimum), the inadequacy of this figure in relation to the pre-war, and even more so the 1941, price level is patent.

Take for example, the miner's requirements of his most essential and stable food stuff— Rice. It is common knowledge that a male or female adult in the collieries consumes, on the average, 1 seer of rice daily. A child can reasonably be expected to consume half this amount. Taking an average worker's family to consist of himself, his wife and two children, their total daily requirements of rice would amount to 3 seers, or 90 seers per month.

At the approximate pre-war price and 12 seers of rice per rupee, these 90 seers would cost Rs. 7-8-0. As against this, the average daily earnings amounted in a working month of 20 days (the maximum number of days per week a worker is physically capable of putting in being 5), to Rs. 11-4-0. In other words, laying aside a sum of Rs. 7-8-0 to purchase his family's full requirements in rice alone, the worker had Rs. 3-12-0 with which to provide for ALL his other needs—cloth, dal, vegetables, kerosene, matches, etc.

Already, in the pre-Dhanbad Conference period, then, the worker was existing some how below any accepted subsistence level.

This position has deteriorated alarmingly in the past 3-4 years. At present, rice sell in the Raniganj area at only 3 seers per rupee. A working class family's monthly quota of 90 seers now costs Rs. 30. In other words, for his full rice requirements alone, the worker would now have to find Rs. 22-8-0 more than he required before the war.

Has his income risen correspondingly?

As a result of the Dhanbad Conference decisions he received in addition to his wage (0-9-0 daily average) a 50% dearness allowance (0-4-6) and a cash attendance bonus of 0-2-0. His average cash income thus totalled 0-15-6 per day or Rs. 19-6-0 per month of 20 working days. He further received $\frac{1}{2}$ seer of rice free for every day worked; his monthly purchasable needs were therefore only 75 seers instead of the original 90 seers.

But at the present price of rice, these 75 seers cost Rs. 25, or about Rs. 6 more than what he actually earns. Clearly the position has become untenable.

Further, since April 1946, the weekly rice ration in the Ranigunj field has been reduced by 14 chattaks, and in exchange the worker gets a compensation of less than 0-5-0 per week.

It is, therefore, clear that as a result of the sharp increase in the cost of living and the failure to compensate the miner sufficiently to maintain even his pre-war hand-to-mouth standard of living, he has been reduced to a position where he cannot provide himself and his family with even their full requirements of rice, let alone the other necessities of life whose prices have also risen by nowhere less than 250% over the pre-war level.

It is at least surprising to hear it maintained that the miner is "better off" today than he was before the war. In fact, he is *worse off, physically more devitalised, and less attracted towards his occupation than he ever was.* Weekly working capacity has declined from 5 to 4 and even 3 days.

It is our view that the coal industry can never be worked successfully with a labour force existing under such economic conditions.

Wage Fixation.

We would propose the following immediate measures for adoption:

(1) Fixation of a statutory minimum wage of Rs. 1-8-0 per day. This minimum rate should include the sum at present termed 50% 'dearness allowance', but should exclude and be in addition to, the cash attendance bonus and free rice bonus which were introduced as a result of the Dhanbad Conference. (2) Setting up of *wage fixation machinery* on a tripartite basis, with representatives of the Government, employers, and labour, to survey the whole field of rates and allowances in the mines and to make recommendations for new scales based on the minimum wage of Rs. 1-8-0 per day.

(3) Inclusion of a fair wages clause in all Government contracts for coal.

(4) Extension to the mines of the Payment of wages Act.

Abolition of the Contract system.

One of the principal factors making for inefficiency in production and intensified exploitation of labour is the present Raising Contractor System.

The main *disadvantages* of this system are as follows:—

(1) It contributes to and perpetuates the unstable and mobile character of mining labour.

(2) It entails unnecessary and huge expenditure by the industry which if saved could contribute substantially to the improvement of equipment and worker's conditions.

(3) It creates an artificial quality of management which prevents that full co-operation of the entire mining personnel so essential for efficient production.

(4) It exposes the worker to an elaborate system of fraud and deprivation based on the contractor's sardars and gangman, who often devise their own arbitrary methods of payment, bind the workers to vicious obligations, and regularly purloin a part of the worker's legitimate dues.

For the above reasons, we are of opinion that the contract system should be abolished without delay, and the whole of mining labour should be brought under conditions of direct employment and management.

III. Welfare Fund Scheme.

The amelioration of general living conditions in the mines and the eradication of disease, illiteracy and drink, are indispensable for the development of a settled, healthy and efficient labour force. The extent to which they are realised depends in large measure on the planned and rapid execution of the Welfare Fund Development Schemes.

Without going into details, we would emphasise the basic need of a *priority* principle, whereby preference of execution is given to each Scheme in proportion to the urgency of the particular need it is meant to satisfy. Unless this is done, results will not be commensurate with the expenditure and urgency entailed.

We would strongly urge that the development schemes be taken up in the following order of priority.

(1) *General housing*, particularly the construction of one or more mining townships for each area.

(2) *Water Supply.*

3. *Adult Education.*

4. *Hospitals and other Medical facilities.*

5. Others, e.g., maternity centres, creches, pit head baths, milk centres, mobile cinemas etc.

This order corresponds, in our view, to the relative urgency of the various problems that have to be tackled, and if conformed with would effect the speediest possible and most effective amelioration of the present appalling conditions.

IV. Trade Union Rights and Civil Liberties.

The non-representation of Labour on the coalfields Committee reflects the present attitude of the employers and Government towards the mine worker's trade Unions and representative organisations. The argument is frequently used that no really 'representative' unions are to be found. If that is true, the responsibility for it must rest entirely on the consistent policy of the employers backed by the Government, to prevent the growth and free functioning of worker's organisations.

Refusal of entry to the colliery area, forcible ejection of trade union organisers, denial of permission to hold meetings, refusal to consider collective representations by the workers or to negotiate with their representatives this has been an unenviable record of the mine owners and responsible Government officials.

It is only during the last year or so that alarm at the continued and deepening crisis of the coal industry has faced the authorities with the unpleasant truth that labour problem cannot be solved unless their feudal outlook towards organised labour undergoes a change. But although occasional and half-hearted attempts are now made to elicit the views of labour, the old practice of hampering and penalising the day to day work of trade unions continues with the assistance of the police. We are prepared to submit numerous instances of this practice, if required.

We submit that the problem of mining labour cannot be satisfactorily solved without a developed and healthy trade union organisation. Only if all restrictions on penalties for legal trade union work are removed, and the workers, freed of the employer's terror, are allowed to organise themselves openly and choose their own representatives, can they develop an interest in the problems of the industry which employs them. Only trade union representatives, elected by the workers and therefore commanding their confidence, can impart a collective sense of responsibility and educate the workers on the evils of liquor, the need of co-operation with the management on common issues, the development of stable and settled habits of work etc.

We, therefore, strongly urge the total removal of all bans and restrictions, in the mining areas, on the rights of entry, assembly, and speech. The policy of Government and the owners must begin to co-operate with the trade union in the common task of saving and developing the industry.

V Nationalisation.

In the last resort, we are of the opinion that nothing short of nationalisation can remedy the fundamental short-comings of the Coal industry, as it is organised at present. The waste of higher grades of coal, low unstable output, antiquated technique obsolete tools, and machinery, harmful profit considerations and the unsatisfactory labour condition all these will persist until the introduction of full state control.

If the coal industry is really to be developed as the basis of general industrial expansion of India, and is to yield a steadily rising output to meet the enormous requirements of the country, we submit the Government must immediately initiate measures for nationalisation.

In our view, some of the main advantages that could be secured through nationalisation would be as follows :—

(1) Conservancy of coal on the most planned and economic lines.

(2) Nationalisation of the entire productive process so that output could be stepped up even without new physical expansion, e.g., longer haulage lines, open-face working, re-starting of quarries etc

(3) Removals and re-equipment so as to secure best utilisation of machinery and tools and their standardisation.

(4) Planning of total production on a national scale so as to keep pace with the country's industrial and economic development programmes.

(5) Uniformity of labour conditions and a rising standard of living for miners, thus making for a settled and efficient labour force.

These advantages would represent so decisive an advance over existing conditions that there can be no case for further postponement of measures for nationalisation.

We are aware that the question of compensation might prove a serious obstacle. It is our considered opinion that as far as foreign capital invested in the mines is concerned there can be no valid case for any compensation, and the mines in question should be confiscated outright. With regard to Indian-owned mines, no commitments are possible at this stage, but the question of suitable scales of compensation can be referred to a national board or committee with tripartite representation of Government, employers and Labour.

In any case, we are emphatically of opinion that a definite decision in favour of nationalisation of the mines and the initiation of measures to achieve that end need not wait upon a final solution of the compensation issue.

VI Suggestions (General)

We have summarised above five main proposals as major measures considered by us as essential for the rehabilitation of the coal industry, with special reference to labour conditions, viz. wage fixation; abolition of the contract system; rapid and planned execution of Welfare Schemes; removal of restrictions on trade union rights and civil liberties; and Nationalisation.

In addition to the above, we would indicate a few more measures which are capable of immediate adoption and would contribute to improvement of labour conditions and production standards:—

(a) Adequate supply of *tubs* and their standardisation.

(b) Replacement of the present *tub system* by the weighing of coal as the measure for wage calculations.

(c) Reduction of working hours to 8 per day, in line with the recent legislation for other industries. Working hours to be counted from the time the worker first reports for duty at the pit mouth to the time he actually leaves the colliery premises after depositing his lamp etc.

(d) Provision for rest intervals and proper ventilation inside the pits.

(e) Introduction of legislation to prohibit sale and consumption of liquor; provision of recreation and amusement.

(f) Introduction of an old-age pension and retirement gratuity scheme.

(g) Adequate supply of cloth at controlled prices for the miner and his dependents.

(h) Supply of refreshment and cooked food to supplement the raw ration scales.

(i) Intensification of work by the Chief Inspector of Mines to enforce the above.



Section XVI

COLLIERIES AND COMPANIES

15. WRITTEN EVIDENCE OF THE NATIONAL
CEMENT MINES & INDUSTRIES LTD.

QUESTIONNAIRE I.

IV

RAILWAY FACILITIES

13. In the North Karanpura, where we have got collieries, we are at a great disadvantage as regards sidings. If sidings are given up to pits-mouth the raising will improve to a great extent.

18. Regarding Siding.—The Colliery Proprietors are surely experiencing difficulties in getting sidings. It requires a very long time from 6 to 18 months and sometimes more to get sanction of a siding. The Colliery owners have to satisfy the Railway Authorities on many points of which some of the items are unnecessary and irrelevant. The questions are generally put as follows :—

(1) Documents of ownership (2) Financial position. (3) Area of the coal land. (4) Reserve of coal. (5) Quality of coal. (6) Estimated raising. (7) Present raising. (8) Present stock of coal. (9) Distance from the Railway line to the Colliery. (10) Future prospects of the Colliery especially in relation to traffic. The items 7 & 8—unless there is a siding the owners cannot raise stock coal which may catch fire and be deteriorated and this will involve blocking of capital. If the items 1 to 6 are satisfied the Authority should sanction the siding. Without a siding a Colliery cannot be developed. The sanction of a siding should not take more than three months. For an assisted siding the owners have to pay for the sub-grade work and the Railways give the materials. In case all the items 1 to 6 are not satisfied the Railway may take a guarantee from the owners for payment of the loss which will be sustained by the Railways.

19. The floor areas of the wagons and the heights up to which Coal or Coke to be loaded are generally marked in all coal wagons. The allowance of minimum and maximum should be allowed as under—3 tons below and 2 tons above carrying capacity up to maximum gross load allowable.

If a colliery or a group of collieries have siding accommodation for 25 wagons or more they should have a weigh bridge so that the overloaded coal may be utilised. To a great extent the colliery people can correctly load the wagons if they have their own weigh bridge at the collieries (Colliery tram line gauges).

25. If the rails are laid up to working face—the output per head increases by at least 25 per cent. The coal cutters load the tubs themselves so that a lot of time will be saved in case the rails are laid up to working face and so they can cut more coal. The miners earn more while output increases reducing the cost. In the case of mining coal by blasting the miners do not load coal—there are separate loaders who also can load more coal in case the rails are laid up to the working face. In some collieries the rails are laid far off

from the working face so miners do not stick there even more wages are given. In collieries where the raising is poor the owner do not give or cannot afford to give such facilities to the miners by extending rail up to the working face. Small collieries are generally very badly equipped and do not care to give facilities to the miners and sometimes they cannot afford to block capital on account of financial difficulty. There is no law to enforce this. It depends on the owners will to give facilities to the miners or not.

VIII

MISCELLANEOUS

33. In the Karanpura coal field.—The land acquisition is guided by the Chhotanagpur tenancy act. Under this act the actual owners have got no rights to transfer their interest in the land. By inducement and by paying compensation they may be made to surrender their rights to the Zamindars (Touzi holders) who will then settle the lands to the colliery owners. Amongst these Zamindars there are many maintenance holders (Khorposdars) who are very litigant and sometimes claim mineral rights do not want to part with their lands and if they can be induced to transfer they claim very heavy sum and sometimes selami and royalty on tonnage. Chotanagpur tenancy act should be amended to facilitate the summary acquisition of the surface rights for mining purposes.

39. In the Collieries.—especially in small collieries there is no arrangement for giving education to the children of the staff and labourers. Rules and regulations should be made to enforce the colliery owner or a group of owners to start a school in a suitable place. For every 20 students there should be at least one teacher. The Education department should take up the matter and engage teachers. Unless this is made compulsory the owners will not take the matter seriously and voluntarily.

Regarding mining education sufficient lecturers should be appointed for lecturing in different centres which should be selected near about the collieries. The present system is inadequate and should be expanded.

QUESTIONNAIRE II

I

CONSTITUTIONAL

1. We do not consider that the division of responsibility between the Centre and the Provinces will be satisfactory. The Central Government should enact legislation to vest in itself the power to regulate mines and mineral development and also to control the production and distribution of coal.

2. The Central Government should assume power over coal mines and the Coal industry. The administration of this department should be pla-

ced under a separate Central Government Department under a Member of His Excellency the Viceroy's Executive Council.

II

ECONOMICS OF THE COAL INDUSTRY.

STRUCTURAL ORGANISATION OF THE INDUSTRY.

3. The structure of the units of Production is satisfactory except that (i) the small and uneconomical holdings should be amalgamated (ii) the collieries run by the consumer should be under the State control as in the case of other private collieries. Their production (according to demand), distribution and conservation (according to quality) should be controlled by the state.

6. Indian Government Railways own and operate their own collieries—The effects on the Coal Industry were as under :—

(a) Competition.—Railways were the biggest consumers of coal and when they did not buy coal from private collieries, there was competition for the disposal of coal to the public even when there was demand, owing to the irregular supplies of wagons.

(b) Railway collieries gave more facilities to their staff and labourers which the private collieries could not afford to give so there was an air of discontent amongst the labourers and staff of the private collieries. To give more facilities the cost of raising of the Railway collieries went up to the level of selling price the private colliery coal and sometimes more.

(c) In case the Railways do not own and operate their own collieries the private collieries get a big consumer and get regular supplies of wagons for Loco coal which has got first priority.

OWNERSHIP AND MANAGEMENT.

7. Private ownership of mineral rights by itself did not lead to the dissipation of the coal resources. Dissipation has been due to absence of rules and regulations for working the mines.

Question of acquisition of mineral rights on the ground of defective working and dissipation of coal resources, does not therefore arise.

8. No.

9. No.

10. In our opinion, the private ownership should continue and State should exercise effective control over Production, distribution and marketing.

FINANCE.

11. Yes, it is true even today. We would suggest :—

(i) the import of the necessary equipment at Government cost,

(ii) distribution of the equipment on hire-purchase system to collieries, and

(iii) realisation of the cost of such equipment by instalments based on the despatch of coal from colliery.

PRODUCTION.

13.

	COST PER TON AT PIT HEAD		
	1936	1939	1945.
Mining	0-12-0	0-14-6	1-6-0
Hauling & Traming.	0-3-0	0-3-6	0-6-3
Railing & Pumping.	0-3-9	0-3-0	0-6-6
Wages & Commission.	0-4-9	0-5-9	0-10-5
Recruiting.	0-4-0	0-4-0	0-12-0
Rations.			0-12-0
	1-10-9	1-14-9	4-5-2
Stores.	0-5-6	0-5-6	1-2-0
Establishment.	0-4-0	0-4-0	1-0-0
Depreciation.	0-3-0	0-3-0	0-6-0
Royalty.	0-4-6	0-4-6	0-4-6
	2-11-9	2-15-9	7-1-8
percentage of Labour cost—60%		63%	61%

In U. K. in 1938—the labour wage ratio was 60 per cent.

The wages ratio in most of the Indian coal mines is different from U. K. coal mines. Here in India the mining is done mostly by pick miners and manual labourers whereas in U. K. mines the mining is done mostly by mechanical means.

14. (i) The coal mining in India is generally done by pick miners and manual labourers.

(ii) The needs of the mining labourers are too little.

(iii) The labourers have got very little responsibility to their dependants.

(iv) They indulge in too much drinking.

(v) They have got no education.

(vi) They are habituated to take unwholesome food whereas a minor requires twice as such food as an ordinary worker. Now-a-days the minor are working for 3 days in a week.

To improve the *per Capita* output of coal we suggest the following.

(a) Introduction of coal cutting machines and other mechanical means for handling coal and removing over burden in case of open cut mines.

(b) Improving the standard of living by giving training and education.

(c) Minimising drinking habits by healthy recreation.

(d) Giving them good wholesome food through colliery shops and canteens.

15. Yes. The system of coal raising by contractors tends to improve output as the contractors for their own benefit recruit minors, give them inducement by advancing money and extract maximum work from them.

Yes. The raising contractors care more for raising than for the safety of the minors and the mines. They raise coal in anyway they like unless there is strong supervision.

16. (a) Opening out as many open cut mines as may be feasible and which may be worked by Bulldozers etc. There are sites where open cut mines yielding higher output can be easily opened, in untapped fields. Quarry working also does not require skilled labourers.

(b) Introduction of machine mining in existing collieries.

(c) By giving new sidings and extended siding facilities to those collieries who have got capacity to increase output and where the output is not improved for want of siding facilities.

(d) Better provision of wagon facilities.

DISTRIBUTION AND MARKETING :

17. We consider a system of price fixation allied to Government controlled distribution adequate.

18. We consider that there is a case for the complete regulation of the use of different coals for different purposes.

Yes. It should be enforced immediately on the basis of wartime practice with some amendments and additional provision. Ultimately analysis of all Indian coals for determining the usability in different industries will have to be done.

19. Does not apply.

20. In the event of complete regulation of the use of coals the distributing authority will have the responsibility for ensuring that the correct coal has been despatched by a colliery.

21. Steam Coal—2" and above.

Rubble Coal—1" to ".

Smithy Coal—1 1/4" to 3/4".

Slack Coal—dust and coal upto 2" (mixed).

Dust Coal—below 1/4".

23. Pooling of Railways freights—If it is desired that the delivered cost of coal at all places should be same in that case there will be objection from the consumers of the Lower freight zones. The cost of production in the Lower freight zone factories will naturally increase on account of higher coal freight. They will then claim for reduction of railway freight on other commodities to keep their costs of production at previous level. The higher freight centres will then be at an advantage. If the Railway freight or higher freight zones are reduced to the level of lower freight zones then the

Railways will lose a substantial income. This is also not feasible.

24. Yes, the fixation of rail freights on a uniform basis for all quality of coal is not only unsound but definitely harmful to India's national interest in so far as it provides an incentive to those consumers who can conveniently use inferior coal to superior grade coals. India's known coal reserves according to quality will show that India, in order to maintain those industries which require superior grade coal should very strictly conserve the coal of high grade whether metallurgical or not. The present freight policy definitely encourages the dissipation and misutilisation of better class coals.

The selling prices of different kinds of coal have been fixed on the basis of quality (on the ash per cent of Barakar Coals and ash and moisture per cent of Raniganj Coals). The same principle may be applied for fixation of Railway freights on the basis of either prices or quality (either on B.T. U. basis or on ash per cent basis and ash and moisture per cent basis).

Assuming the Railway freight on coal up to a distance on 200 miles is 0.165 pie per maund per mile and taking this Railway freight on No. 1 grade coal the Railway freights on different grades of coal should be as follows :

On price Basis Grade	Price per ton	Railway freight per md. per mile.
Selected A.	Rs. 13/5/-	0.192 pie.
Selected B.	Rs. 82/5/-	0.175 "
No. I Grade.	Rs. 11/7/-	0.165 "
No. II Grade.	Rs. 11/1/-	0.160 "
No. III Grade A.	Rs. 10/11/-	0.153 "
No. III Grade B.	Rs. 10/5/-	0.145 "

Average freight comes to 0.165.

26. We agree.

28. Yes.—In our opinion a central body for E. I. R. and B. N. R. for distributing coal wagons for the collieries will be more efficient. The total number of wagons of both the Railways will be available for distribution according to priority. All the collieries and the consumers on both the Railways will get a fair and equal treatment in the matter of wagons supplies.

29. Free competition is not desirable. In our opinion, the trade cannot work on voluntary basis at the present moment.

As we are not aware of the coal requirements of the country, industry by industry, in the period of Post War reconstruction and industrialisation we cannot comment on the subject.

30. No

31. All coals should be graded, by the grading board which should be represented by Government, Colliery Owners, Consumers and Trade or-

ganisations. In our opinion the grading should be done as described under clause (32) below.

For fixation of Prices—a similar board like the grading board should be Constituted which will fix the prices of coal according to quality and cost of production F. O. R. or pitsmouth.

32. RANIGANJ SERIES SEAMS.

Selected A	up to 17.5% ash and moisture	13- 5-0
" B	17.5 to 19 "	12- 9-0
Grade I A	19 to 21.5 "	12- 3-0
" B	21.5 to 24 "	11- 14-0

Coal from any other Seams.

Selected A	up to 15% ash	13- 5-0
do B	15% to 18 "	12- 9-0
Grade I A	18% to 21% "	12- 3-0
do B	21% to 24% "	11- 13-0
do II A	24% to 27% "	11- 7-0
do B	27% to 30% "	11- 1-0
do III A	30% to 33% "	10- 11-0
do B	33% to 36% "	10- 5-0

In our opinion, the prices of different grades should be as shown above but we think Grades I and II should be sub-divided as IA, IB, IIA, IIB and their rates should be as shown above underlined. The basis of calculation is -/2/- per 1 per cent. of ash and in the Raniganj series -/2/5 per 1 per cent. of ash and moisture.

In fixing the F.O.R. prices—the transportation charges from the pitsmouth to the loading siding should also be taken into account. Many small collieries are very much handicapped as regards loading siding. If the prices of coals of those collieries are fixed at a higher rates for the same quality the consumers will suffer. To safeguard the interests of the consumers no increase in the rates are feasible but those collieries may be given facilities for transporting their coal.

33. For fixing the price of coal the following points, in our opinion, should be taken into account :—

- (1) Quality.
- (2) Cost F. O. R.
- (3) Head office charges.
- (4) Managing Agency Commission.
- (5) Taxes and Cesses.
- (6) Workman compensation and miners welfare fund.
- (7) Miscellaneous.
- (8) Profit of 20 per cent. for distributing dividend and reserve fund.

34. Under the state control of fixation of prices there is no need of any middleman or broker.

The distributing authority will take the places of the middleman or broker, thereby the consumer will be relieved of the burden of commission generally earned by the middleman or broke.

TAXATION.

35. In open competitive markets, especially when the market is down, the cesses and taxes become burden to the colliery owners. Now under the state control of price fixation there is nothing to complain as the cesses and taxes have been taken into consideration.

III.—CONSERVATION OF HIGH GRADE METALLURGICAL COAL

38. Metallurgical coal—Coal which can be converted into Hard Coke by high temperature carbonisation and is suitable for smelting iron ores, steel, etc.

The known deposits of metallurgical coal up to 2,000 feet depth are roughly as under :—

Giridih	49 million tons.
Ranigani	300 " "
Jharia	900 " "
Bokaro	500 " "
Jainti	1 " "

46, 47. The reserves of iron ore in India is very great and the known reserve of metallurgical coal is about 1,700 million tons. To protect the future iron industry, chemical industries and other allied industries the conservation of this metallurgical coal is essential and it should be done immediately. If conservation is not done now the future iron industry will have to be depended on Imported coal.

The output of metallurgical coal is to be gradually reduced within a certain period (say 3 years) from the present output to the level of actual requirements.

Smaller concerns who have got seams of metallurgical coal may be amalgamated and the combine may be allowed to raise non-metallurgical and the actual requirements of metallurgical coal. If amalgamation is not feasible then the bigger concerns may be asked to buy the rights of the smaller concerns and the bigger concerns may only be allowed to work non-metallurgical and the actual requirements of metallurgical coal. No new collieries should be opened to raise any coal which can be used for metallurgical purposes as it is or after improvement.

48. The restriction should be gradually imposed say within 3 years. The concerns who have been working metallurgical coal and by restriction their output has been stopped, may be given preference to open up new collieries to raise non-metallurgical coal in new fields or in old fields wherever possible.

49. We do not consider it desirable that the State should own and operate all the metallurgical coal.

Statutory restriction of the mining and use of such coal will be helpful.

IV—CONSERVATION OF HIGH GRADE STEAM COAL

50. High grade steam coal means non-coking selected and No. 1 grade coals. The reserves are as follows :—

	Upto 2000 feet depth.
Raniganj	1,570,730,000
Jharia	3,251,000,000
Bokaro	1,000,000,000
Ramgarh	2,000,000
North Karanpura	2,000,000,000
South Karanpura	750,000,000
Daltanganj, Auranga Jainti, etc.	100,000,000

51. Yes—The high grade steam coal has been used wastefully in brick burning, in boilers etc. A portion of the high grade steam coal may be conserved for metallurgical use as there is shortage of metallurgical coal and the balance may be used for bunkering, in inland steamers, cement factories and in locomotives by blending or otherwise.

52. The reserves of high grade steam coal and metallurgical coal are 8600 million tons and 1750 million tons respectively of which half are extractable. Considering the vast reserve of iron ore and the future development of steel industry the reserve of 875 (1750/2) million tons of metallurgical coal is insufficient and so a portion of the high grade steam coal should be conserved. The conservation may be effected in the manner described in question 47 above.

V.—CONSERVATION GENERALLY

54. 40% in first working and 35 to 40% in depillaring.

In recent years there has been improvement owing to the strict supervision and guidance of the Mines Department.

55. The Existing Mining rules and regulations are adequate.

56. We agree to the recommendation of rotation of working. For exercising the control the Mines Department should have the full knowledge of the seams and their intervening stratas. In unprospected areas the control of rotation working is not possible. So, in our opinion the Mines Department should get the information either from the colliery owners or from the Geological Survey of India.

57. & 58. The enforcement of stowing should be extended for conservation and for safety also. It should apply to metallurgical and high grade steam coal.

The stowing should be assisted by the Government—by acquiring sand rights and by delivering it pu to pitmouth.

59. If the lessors have got sand in their property they should share the cost of stowing by foregoing the sand rights.

62. We accept the principle but got no data to provide.

63. The present method of producing Soft Coke is very wasteful as all the bye-products are lost. This should be regarded as a National Loss. The Fuel Research Department should suggest the collieries the methods of recovering bye-products while producing Soft Coke.

64. Yes—The coal-tar distillation industry should be started in India and should be treated as special case.

VI.—MINING LEASES AND FRAGMENTATION.

65. The terms are fair. Regarding period of leases. This should be fixed according to area and the reserve and should not always be guided by the Standard Mining Rules.

69. Uneconomic Colliery holdings—Properties which cannot be profitably and economically worked and where the percentage loss of coal is great on account of barrier and working difficulty.

We have got no knowledge of the extent of such holding. The holdings comprise both direct leases and sub-leases.

The factors which led to the fragmentation of such holdings are (1) Uncontrolled working (2) Division amongst partners (3) Economic depression (4) Uncontrolled leasing and sub-leasing of coal lands.

70. The existence of uneconomic holdings are undesirable in the National interest.

Reasons are—Loss of coal, cannot give facilities to the staff and labourers, cannot equip the collieries with modern machinery.

71. Yes—Legislation should be enacted for ensuring leases of areas of economic size.

(ii) Yes.

(iii) Yes.

(iv) In case of failure of voluntary amalgamation Legislation should be enacted to enforce amalgamation.

VII.—OPENING OF NEW COAL FIELDS.

72. There are big deposits of coal lands in this country which are either untapped or partially tapped such as (1) Ramgarh (2) South Karanpura (3) North Karanpura (4) Auranga (5) Daltanganj coal fields etc.

We have got no knowledge of extent and quality of the deposits except a portion of North and South Karanpura and Auranga coalfields.

Coal fields		Reserve			Total million tons.
		Area in Bighas tons	Upto 20% ash in million tons	above 20% ash in million tons	
South Karanpura .		20,000	..	..	166.4
North Karanpura	(A)	2,880	22.80	16.5	39.48
	(B)	2,280	18.08	14.04	32.02
	(C)	3,450	27.37	14.49	41.86
	(D)	3,540	6.30	51.74	58.04
	(E)	2,550	23.56	64.26	92.82
	(F&F1)	2,000	60.80	106.38	167.18
		840			
	(G)	3,840	102.12	214.41	316.53
	(H)	2,160	18.24	65.23	83.47
	(I)	6,280	64.12	178.92	243.04
	(J)	3,340	36.40	19.15	55.55
North Karanpura Area	(K)	780	8.31	2.18	10.49
	(L)	9,900	..	..	110
	(M)	1,20,000	..	..	40 to 45
Auranga		74,160	..	..	30

In blocks A, F, and G there are four collieries working five seams and all of them have been placed in No. 1 grade. Suitable sites for open cut mines are available in the above areas.

VIII.

ADMINISTRATIVE MEASURES.

73. Yes, a single body has definite advantages over various different bodies.

75. Yes.

ORAL EVIDENCE OF MR. S.K. ROY CHAUDHURY OF THE NATIONAL CEMENT, MINES AND INDUSTRIES, LTD.

It is not desirable that consumer interests, particularly the Railways, should own and operate collieries. The Railway collieries should be given to the public for working. It is true that the railways consume 30% of the total output, but their requirements can always be met and, as such it is not necessary for them to keep collieries to meet emergencies.

The dissipation of coal reserves can be attributed, to an extent, to owners' negligence towards inefficient workings, and some general rules and regulations should be laid down by Government who should also be empowered to see that certain terms of the leases are carried out.

Free competition will disappear if regulation of the use of coal is enforced, thereby also regulating control over distribution, but it will be welcomed as being for the good of the industry.

Prices should be fixed on the basis of the cost of production; 20% over the cost would be a fair price. In view of the present cheap money market, this may be in the high side as compared to 7½ to 10% in other industries, but conditions in the coal industry are different and it has suffered terribly in the past.

The predecessors in title (Garg Bros. & Co.) of the Company (the National Cement, Mines & Industries Ltd.) which was constituted in 1932 took a prospecting license in 1920 for certain areas in the district of Ranchi. There was no Railway line at the time through the tract taken on prospecting license. Mining lease was taken by the said Garg Bros. & Co. in 1925 which along with the said prospecting license was made over

to the National Cement, Mines & Industries Ltd. who prospected and discovered further coal areas. The Company did their best to develop the mines but for the difficulties of Railway siding and transport arrangements they could open up some Collieries only. Much more development could have been brought about by the Company by opening of collieries but for difficulties in the way of getting adequate Railway sidings etc. For instance, the Company applied for an extension of their present siding to deal with their increased output about two years ago but the extension could not be had until now. The Railway line was opened in 1929 and it was available for public traffic in the end of 1930. The Company took leases of further coal areas in the neighbouring areas on prospecting and discovering further coal lands. One Corporation or Company can undertake prospecting over a large area but for working and developing such areas it is necessary to float subsidiary companies or by sub-lease portions of the areas which the Company has been doing now that they expect colliery equipments and sidings etc. to be available with greater facilities and quickness and the demands for coal also appear to be quite promising. It may be stated that during the period of the Company's activities the coal-market kept dull for a pretty long time.

When leases are granted to other parties, the period conforms to that in the head-lease. Salami charged is Rs. 200 per bigha for coal while the rate of royalty is 8½ annas per ton, irrespective of the quality and price.

WRITTEN EVIDENCE OF M/S. BIRD & CO. AND F.W. HEILGERS & CO., CALCUTTA.

QUESTIONNAIRE No. 2.

We have seen a copy of the Indian Mining Association's reply presenting the views of their affiliated members on the various questions in-

cluded in Questionnaire No. 2. Our views on these various points are in the majority of cases fully in accord with those expressed in the Indian Mining Association's reply but as certain of the questions such as 65 and 72 can only be dealt with by individual concerns and on certain other questions our views as the major producers of coking coal require further elaboration than has been possible in the Indian Mining Association reply we submit herewith on behalf of the Coal Companies under the Managing Agency of Messrs. Bird & Co. and Messrs. F.W. Heilgers & Co. separate answers to the following questions Nos. 8, 15, 17, 43, 47, 48, 65 and 72.

Question 8.—We should like to elaborate on the second paragraph of the Indian Mining Association reply to this question in so far as it concerns the Karanpura Coalfield.

The Karanpura Development Co. Ltd., have since 1919 employed a full time and highly qualified geological staff on prospecting work in the Karanpura Coalfield and the expenditure involved to date amounts to many lacs of rupees. This work has continued for over 25 years and as a result the majority of the Karanpura Coalfield has been prospected before mining development in greater detail than any other Coalfield in India. There remains further work to be done which our staff are engaged on and we estimate that it will have taken a full 30 years from 1919 before the entire South Karanpura Coalfield has been prospected in detail. We should like to point out that owing to lack of railway and power facilities there has been no possibility of developing this Field on a major scale during the last 25 years and the Karanpura Development Co. Ltd. have continued this expenditure on prospecting well knowing there would be no return in any financial form for many years after the commencement of this work.

We do not wish to excuse the faults and failures of certain royalty owners in this country but we do feel that this is an example of the value of private ownership of royalty rights by substantial Companies. We do not consider that any Government Department responsible for royalties would have been allowed to take or would have taken such a long sighted view on a matter of this nature and that if, as we consider inevitable, the Karanpura Coalfield develops into one of the biggest coal raising areas in this country, it will have been largely due to the foresight and initiative of those business men, who decided to start and continue with these large scale and protracted prospecting operations which will only yield results 20 to 25 years after this policy was decided on by them.

The results of our experiment are given below that a suitable metallurgical coke can be produced grade coking coals of the Jharia Coalfields.

1st Test.

25 % Sirka Coal — 75% Jharia Coal—Coal Analysis.

Jharia Coal, Dry Sample

Ash content	15.9%
V. Matter	22.5%
F. Carbon	61.7%
	<hr/> 100.0

Sirka Coal, Dry Sample

Ash content	12.5%
V. Matter	32.2%
F. Carbon	55.3%
	<hr/> 100.0

Blended Coal Dry Sample.

Ash content	15.4%
V. Matter	24.7%
F. Carbon	59.9%
	<hr/> 100.0

Question 15.—We are in general agreement with the reply of the Indian Mining Association to this question although we feel a distinction should be drawn between coal raising contractors and commission contractors who are nothing more than recruiters paid a commission on the output of the coal produced by their labour, and who in the absence of a full scale recruiting system perform a most useful service in providing labour for the Collieries.

We are generally speaking not in favour of raising contractors and prefer our labour to be paid direct by the Company to ensure they are receiving their just and proper dues.

We should however like to point out that in the Government Railway Collieries the employment of raising contractors is general because the rules and regulations surrounding direct employment by the State are such that a sirkari system would fall down under its own weight in the event of any policy of general nationalisation being carried out in this country the State might be compelled to employ raising contractors in collieries where at present sirkari working is the rule, simply and solely because a Government organisation is not sufficiently flexible to deal with the innumerable day to day problems involving individuals, both staff and labour, which occur daily throughout the normal operation of a colliery and require immediate decisions. As we are opposed to the employment of raising contractors, we consider the above another reason in addition to those stated in the reply to Question 10 of this Questionnaire by the Indian Mining Association as to why nationalisation is not in the best interest of this country, and we are of the opinion that either the introduction of governmental regulations are: staff etc. or the alternative of the employment of raising contractors would be a serious retrograde step compared with existing practice in the majority of collieries in this country.

Question 17.—The suggestion put forward by the Indian Mining Association of the method to regulate the Railway Board and Market Prices would not, in the event of conservation of Coking Coals, provide a basis for price fixation of that class of coal, and in our opinion therefore it would be necessary for prices of these coals to be fixed once a year by a Committee representing Government, Consumers and Producers.

Question 43.—In elaboration of Indian Mining Association reply to this question we would like to take this opportunity of providing further information on bulk tests carried out by us in the past at Loyabad Coke Plant on the production of a metallurgical coke from a blend of Jharia coals and semi-coking Karanpura coals. and in our opinion provide adequate evidence by a blend of semi-coking coals with the high

Analysis of Coke made from above.

Ash	19.9 %
V. Matter	0.2%
F. Carbon	79.9%
	<hr/> 100.0

<i>Shatter Index.</i>	
2"	75%
1½"	88%

2nd Test

25% Argada Coal—75% Jharla Coal

<i>Jharla</i>		<i>Argada</i>		<i>Blended Coal.</i>	
Moisture	0.3%	Moisture	6.9%	Moisture	8.0%
<i>Dry Sample</i>		<i>Dry Sample</i>		<i>Dry Sample</i>	
Ash content	16.4%	Ash Content	17.2%	Ash content	16.7%
V. Matter	21.9%	V. Matter	31.0%	V. Matter	24.7%
F. Carbon	61.7%	F. Carbon	51.8%	F. Carbon	58.6%
	<hr/> 100.0		<hr/> 100.0		<hr/> 100.0

Analysis of Coke made from above.

Ash	21.2%
V. Matter	0.3%
F. Carbon	78.5%
	<hr/> 100.0

<i>Shatter Index</i>	
2"	75%
1½"	85%

Question 47.—We are in agreement with the general sense of the reply of the Indian Mining Association to this question viz. that the first impact of any restriction scheme should fall on the Steel Cos' Collieries and the Government Railway Collieries and that any conservation of coking coal for the metallurgical industry must first be preceded by the development of supplies from alternative sources. We also agree that a number of inaccurate reports have been made on the subject of the limited reserves of coking coal and that any drastic scheme of conservation in the Jharla Coalfield would have most serious economic repercussions both on individual collieries and on the Jharla coalfield in general.

If however it is decided against the advice of the coal trade that after alternative supplies are available it is desirable to introduce by legislation a scheme for the conservation of coking coal in this country, we can only suggest that it should be along the following lines.

1. Only seams from 18 to 12 to be conserved and no control to be imposed over the disposal of coal from seams 11 and below. The above will of course only apply to collieries in the Jharla coalfields and as far as collieries other than those owned by Government Railway Collieries and the Steel Cos. in other coalfields producing coking coal are concerned, a different method of treatment will require to be formulated.

2. Each group of collieries to be allowed to maintain its raisings of coal from 12 to 18 seams at the average of the raisings over the last 5 years. Collieries to have the right to appeal to the Chief Inspector of Mines (or other authority) for the revision of their quotas in special cases where their outputs have been unduly reduced by exceptional factors *e.g.*, mining accidents, etc.

3. First priority for coal raised from the above seams to be granted to the steel industry and other special industries referred to in sub-

paragraph (b) of the Indian Mining Association reply to question 46.

4. On the increase in output of steel and resultant increased demand for metallurgical coal the least important of the consumers using coking coal for steam raising to be supplied from other fields; this adjustment could well be made by negotiations between the Steel Cos. and the coal trade.

5. The raisings of coking coal from the collieries controlled by the Steel Industry and the Government Railway Collieries to be cut forthwith by 50% and the additional tonnage to be made available to be distributed in the form of increased quota among the other collieries raising coking coal from seams 18 to 12. In the event of such collieries being unable to take advantage of such increased quota the steel industry and Government Railway Collieries to be entitled to increase their raisings in the following year to the extent of such unabsorbed quota.

We should like once again to emphasise that any proposal to reduce raisings in the Jharla Coalfield today to the level of the current consumption of the Steel Industry would not only paralyse other industries in this country but would virtually bring the Jharla Coalfield itself to a stand still. Many collieries are in a state in which the cessation of mining operations would mean the total loss of all the coal contained therein whilst from the commercial point of view any policy of closing down certain collieries or heavily restricting the output of collieries would of necessity lead to a large demand for compensation, a serious unemployment problem and a very large loss of revenue to the railways and other similar bodies.

Question 48.—We would suggest that in the event of any scheme of conservation reducing the output of metallurgical coal resulting in the closing down of collieries or the compulsor reduction of their output that they should b

compensated by Government so that they are assured a level of profits before taxation equivalent to the average over the past 5 years. A fund will have to be treated by Government for the payment of such compensation and we would suggest that possible means of raising such funds are as follows :—

(1) Payment by the Steel works of either a substantially increased price for coal consumed or cess or contribution to a central fund.

(2) Contribution by working metallurgical collieries to restricted collieries by means of a central pool such as has been worked successfully by the Indian Jute Mills Association for the last few years.

(3) Levy of a cess on all despatches of coal, whether metallurgical or otherwise.

(4) Contribution by Government to a central subsidy for restricted Collieries.

Probably the final solution lies in a combination of all or most of these methods, but we are emphatic that the steel industry being the prime beneficiaries of the scheme, should be substantial contributors.

We would emphasise that the above remarks should be read in conjunction with the reply of the Indian Mining Association to previous questions in which they indicated that in their opinion the conservation of metallurgical coal is not as urgent a problem as it is represented by certain authorities and if any such conservation scheme is introduced by Government that it should be on the lines laid out in our reply to Question 47. This would involve Government in the payment of little or no compensation.

It should also be emphasised at this stage that if Government does decide to introduce a drastic

Up to 1945 the following working collieries have

- (a) Bhurkunda Colliery
- (b) Argada Colliery
- (c) Sirka Colliery
- (d) Religara Colliery
- (e) Lapanga Colliery

We have had under consideration plans for developing this Field on a large scale for the past 20 years but the following factors have militated against this.

(a) The general state of depression and over production in the coal industry from 1926 to 1939. The highest grade coal in this country was selling during certain of these years at under Rs. 3/- per ton and the Sirka coal offered by the South Karanpura Coal Co. to the Railway Board at Rs. 1/14/- per ton was not accepted. Financially speaking there was no great incentive either to lease the areas or the lessees to take up areas.

(b) The lack of Railway facilities. The branch railway system in this field was surveyed between 1924 and 1929 but construction was not undertaken by the Railway Board owing to the general state of depression in the country and lack of funds.

form of conservation involving the closing down of certain collieries and heavy restrictions on others that in addition to the guaranteeing of profits to such collieries there will be a heavy burden to be borne in the shape of minimum royalty, watch and ward, pumping, safety staff, etc. etc.

Question 65.—As advised in the I. M. A. reply to this question we as individual members of the Association submit herewith a statement showing the subleases we have granted and entered into from 1936 to 1945 together with the royalty and minimum royalty provisions thereof.

Question 72.—We are aware of a large number of undeveloped or partly developed Coalfields in this country such as, Korea, Surguja, Daltonganj and Karanpura. There are probably other Fields in addition to those mentioned but the Coal-field with which we are primarily concerned is the Karanpura Coalfield and this is the only undeveloped Coalfield which has been prospected in any detail. We have had an expert geological staff at work prospecting in this Field for the last 25 years and as a result have collected information which is not available in respect of any other undeveloped coalfields in this country.

This Coalfield consists of two parts namely the North Karanpura Coalfield and the South Karanpura Coalfield.

These two fields were taken on a Prospecting License by Messrs. Bird and Co. from the Rajah of Ramgarh in 1915.

The result to date may be summarised by saying that the North Karanpura Coalfield contains virtually no coal of economic value under present conditions while the South Karanpura Coalfield contains the biggest unworked deposits of quality coal in India.

been started in this field :—

- Owned by Government Railway Collieries.
- Do.
- owned by South Karanpura Coal Co. Ltd.
- owned by Karanpura Mining Syndicate.
- owned by the Hindusthan Coal Co. Ltd.

(c) The lack of Electric Power facilities.

(d) The freight disadvantage of this field compared with other coalfields in this country. For upcountry markets Karanpura has no freight advantage over Jharia owing to the long haul *via*. BARWADIH but as far as downcountry markets are concerned the Karanpura Coalfield suffers from a freight disadvantage—at present approximately Rs. 0/13/0 per ton—compared with the Jharia Coalfields.

In this connection we would draw the Committee's attention to the relative freight advantages the Central Provinces Coalfields have over the Bengal & Bihar Coalfields. We give below the relative freight rates from which it will be seen that the Central Provinces have a definite freight advantage for any destinations from 175 miles to 400 miles from the Collieries. We would suggest that in

view of the necessity of opening up the Karanpura Coalfield and its freight disadvantage in the downcountry market that the question of

granting the Karanpura Coalfield the same freight rates as the Central Provinces Coalfields should be given most serious consideration.

Bengal Coal Scale	Pie per md. per mile	C. P. Coal Scale	Pie per md. per mile
(i) For traffic carried for distances 400 miles and under : For all distances up to 200 miles inclusive.	0.165	(i) For traffic carried for distances 400 miles and under : For all distances up to 175 miles inclusive.	0.165
Plus for any distance in excess of 200 miles and upto 400 miles inclusive.	0.130	Plus for any distance in excess of 175 miles and upto 400 miles inclusive.	0.060
(ii) For traffic carried for distances—over 400 miles : For all distances upto 200 miles inclusive.	0.150	(ii) For traffic carried for distances over 400 miles: For all distances upto to 200 miles inclusive.	0.150
Plus for any distance in excess of 200 miles and upto 400 miles inclusive.	0.560	Plus for any distance in excess of 200 miles and upto 400 miles inclusive.	0.060
Plus for any distance in excess of 400 miles.	0.050	Plus for any distance in excess of 400 miles	0.050

As a result of recent discussions with Government of India it has now been appreciated by the authorities concerned that if the increased demand for coal in this country is to be met the Karanpura Coalfield must be developed. This does not take into account any action by Government to conserve coking coal but if this is done the necessity for increased raisings from Karanpura becomes even more important and in fact it is quite clear that no scheme of conservation can be implemented until alternative supplies of coal are available and these can only be obtained from Karanpura and Central India. By way of implementing the above proposals to develop the Karanpura Coalfield the following action has been taken in recent months.

(a) The Railway Board have approved in principle the construction as Branch Lines of approximately 7 miles of track in this Coalfield. It is estimated that as a result of this construction followed by the construction of assisted sidings by 1950/51 it should be possible to raise an additional 2 million tons from this field.

(b) Arrangements have been made with the Government Railway Collieries to instal a second 1000 K. W. set at Bhurkunda Colliery which will provide sufficient electric power for development until such time as the Bihar Grid is in operation.

(c) Messrs. Karanpura Development Co. have recently leased certain areas in this field in which work will start in the near future on the development of collieries. It is expected that during the next year further subleases will be concluded with prominent Indian coal owners.

As far as Messrs. Karanpura Development Co. is concerned a great deal of work has been done

during the last year in making every endeavour to ensure that this field is developed to the maximum extent as soon as possible and this work will be continued unremittingly.

The quality of the coal varies from 11 per cent ash up to 25 per cent. ash but generally speaking it can be said that the reserves of high grade coal are almost inexhaustible, running into thousands of millions of tons. Full details of the quantities involved have been submitted in our statement of coal reserves. Many of the seams are also semi-coking in nature and can be suitably used by blending to assist in the manufacture of metallurgical coke.

We would in summary take this opportunity of emphasising the almost unlimited possibilities in the Karanpura Coalfield and the vital part that this Field can play in providing the country with the increased supplies of coal that it requires. The Supply Department have provided valuable assistance in supporting the Karanpura Development Co. Ltd's proposals for the introduction of Railway and Power facilities and the Karanpura Development Co. themselves are intent on pursuing an active progressive policy in this Field. They have in the past, as previously mentioned, prospected this area in the greatest detail and will in the near future have available for sub-lease many attractive areas which will be offered to the Indian Coal Industry. The Field contains many seams of the highest quality coal and provided adequate transport facilities are made available there is no reason why increased outputs from this Field up to approximately an additional 5 million tons per annum should not be obtained within the next 5 to 10 years.

(ANNEXURE REFERRED TO IN REPLY TO Q. 65)

LEASES TAKEN					SUBLEASES GRANTED				
Name	Year	Area	Minimum Royalty	Royalty per ton	Name	Year	Area	Minimum Royalty	Royalty per ton
BURRAKUR									
Saunda (Block D)	2-11-45	2466 II	Rs. 14,796 per annum until despatches commence, afterwards Rs. 36,990 per annum	Rs. 0/8/0 all coal. Rs. 1/0/0 all coke on despatches	Akaskanali	19-5-40	420 II	Rs. 150 per month.	Rs. 0/6/0 all coal. Rs. 0/7/0 soft coke. Rs. 0/8/0 hard coke on despatches.
Chak Bon- bohal ad- ditional area.	1945-46	85 B 3K	Rs. 255/8/- per annum	Rs. 0/4/0 all coal on despatches.	Bhandaridih	1939	199B 4K	Rs. 1200 per annum.	As above.
					Phutaha	18-4-39	77B 4K 13Ch	Rs. 1800 per annum	Rs. 0/5/0 all coal on rai sings except dust.
Chak Bon- bohal Bajeapti lands.	1945-46*	8B 14K 14Ch.	Rs. 26/4/- per annum.	As above.	Phutaha	9-1-45	54B8K oCh.	Rs. 1200 per annum.	As above.
KARANPURA DEVELOPMENT									
Bachra	5-9-45*	3228B	Rs. 16,140 per annum	Rs. 0/4/0 steam 0/3/0 rubble 0/2/6 slack 0/2/0 dust 0/6/0 soft coke 0/8/0 hard coke on despatches	Matkuma Ladi and Lapanga	1945-46	*210B	Rs. 3,150 per annum	Rs. 0/8/0 all coal on despatches.
Chordhara	27-12-45*	1570B	Rs. 7,850/- per annum	As above.	Sirka	23-12-37	567B	Rs. 8,504 per annum.	As above.
					Saunda (Block D)	1945-46	2466B	Rs. 14,796/- per annum until despatches commence afterwards Rs. 36,990/- per annum	As above.
Matkuma, Ladi and Lapanga.	27-6-45*	210B	Rs. 1050/- per annum	As above.					
Saunda (Block A)	1945-46*	792B	Rs. 3,960/- per annum	As above.					
Saunda (Block B)	1945-46*	1147B	Rs. 5,735/- per annum	As above.	West Sirka	14-9-45	1051B	Rs. 6,306/- per annum	As above.
Saunda (Block C)	1945-46*	985B	Rs. 4,925/- per annum	As above.	Sayal (Block D)	Jan. 1946*	2774B.		
Saunda (Block D Balance)	1945-46*	1338B	Rs. 6,690/- per annum	As above.					
Sayal (Block B)	1945-46*	349B	Rs. 1,745/- per annum	As above.					
Sayal (Block C balance)	1945-46*	390B	Rs. 1,950/- per annum	As above.					
Sayal (Block D balance)	1945-46*	720B	Rs. 3,600/- per annum	As above.					
West Sirka	2-8-37	766B	Rs. 3,830/- per annum	As above.					
Sirka	2-8-37	567B	Rs. 2,835/- per annum	As above.					
Gidi, Kur- kuta.	1945-46*	3645B							
Saunda	2-8-37	1128B	Rs. 5,640/- per annum	As above.					
SOUTH KARANPURA									
Sirka	23-12-37	567B	Rs. 8,504/- per annum	Rs. 0/8/0 all coal. Rs. 1/0/0 all coke on despatches.					
West Sirka	14-9-45	1051B	Rs. 6,306/- per annum until despatches commence, afterwards Rs. 15,765 per annum.	As above.					

*Documents not yet completed.

LEASES TAKEN.					SUBLEASES GRANTED.				
Name	Year	Area	Minimum Royalty	Royalty per ton	Name	Year	Area	Minimum Royalty	Royalty per ton
ONDAL									
Bhatmuriya	1945-46		*859B 1K 6Ch.	Rs. 859/1/6 per annum					Rs. 0/4/6 all coal on despatches.
Chora	26-1-39		111B 2K 12Ch	Rs. 200/- per annum					Rs. 0/4/6 steam Rs. 0/2/6 slack and rubble on raisings.
Chora	10-2-42		64B 2K 13 Ch.	Rs. 300/- per annum					Rs. 0/4/6 all coal on raisings.
Chora	19-2-45		*41B 8K oCh.	Rs. 100/- per annum					Rs. 0/4/6 steam Rs. 0/2/6 slack and rubble on raisings.
Chora (balance) & Bonbhal 825 bighas	1945-46		*3784B						
Sonepur	1945-46		*4146B	Rs. 4,000/- per annum					Rs. 0/4/6 all coal on despatches.

*Documents not yet completed.

Oral evidence of Messrs. F. W. A. Carpenter and W. H. S. Michelmores, representing Messrs. Bird & Co. Heilgers & Co. on 24-6-1946 at Calcutta.

Question.—As you are in the Karanpura Development Company, could you tell us what is the area of this field which you took on prospecting licence ?

Answer.—I have not got the exact figure with me ; but it is certainly over 100,000 bighas.

Question.—Could you tell us, whether a firm or organisation, even of the size of your Company, can be expected to develop this property reasonably ?

Answer.—We are fully qualified to carry on detailed prospecting of the area. In fact, we have done so over the last 25 years. But we have had no intention when acquiring the land of developing the entire area ourselves.

Question.—What is the period of your prospecting licence ? Have you any difficulty in renewal of it ?

Answer.—The licence finally expires in 1957.

Question.—What is the duration of the leases you have taken ?

Answer.—All for 999 years.

Question.—The suggestion put to us is that no one party should be allowed to take a prospecting licence of more than 10 square miles. This is for the safety of the mineral resources of the country.

Answer.—As far as we are concerned, the fact is that we have been able to prospect the whole area. This concession has enabled us to engage geologists to survey the coalfields closely. In Karanpura, we have done the prospecting more

efficiently and in greater detail than has been done in any other coalfield before.

Question.—It is the primarily the duty of the State to carry out the survey of the different parts of the country and not of a private enterprise.

Answer.—That is a matter of opinion.

Question.—Talking of opinions, do you consider that in any future development of mineral resources of the country, functions like this should be left to private enterprise, functions such as mapping, geological survey, etc. ?

Answer.—Personally, I feel that the ideal is a compromise between State work and private enterprise. General mapping of the country and surveying etc., must continue to be done by the Geological Survey of India, but private enterprises can, in my opinion, more usefully carry on prospecting, drilling etc., and this will bring very good results.

Question.—In respect of exploration, detailed mapping, development, etc., it is possible that if the activities were entrusted to a private company, they may hold on to the property and not develop it, at any rate, until they could derive the maximum profit.

Answer.—It is certainly possible.

Question.—If your prospecting is complete or nearly complete, how do you propose to use the property ?

Answer.—We are planning to work several areas ourselves and to let out several additional areas to other substantial colliery proprietors work. Obviously, we cannot produce on the whole output that will be required, because we have not got the resources and it is our to let out substantial blocks to substantial parties so as to ensure the maximum development.

Question.—You have no trouble with the royalty owners in regard to the terms of the various leases you have obtained from them.

Answer.—No, because the terms of the leases were laid down in advance.

Question.—There have been cases in which these advance leases have not been honoured.

Answer.—That is not so in our case. We had one case and we won that case in the lower court. The other party may take it to the Privy Council. In the meantime, he is executing the leases under the terms of the deed.

Question.—In question 15, you have discussed this question of coal raising contractors and you admit that they perform a most useful service. Do you mean in the matter of recruitment only?

Answer.—Recruitment only, yes.

Question.—You have made a remark about the Government sarkari system. By that, you mean that every labourer when he is employed to work on or in the mines is straightaway taken as a Government servant and subject to the Fundamental Rules?

Answer.—No; Railway collieries have raising contractors, and this system was fairly common amongst commercial collieries some years ago. We have done away with this system mainly on account of Government pressure, but our point is that it is the only possible way in which the railway collieries can run, because their methods are not sufficiently elastic in view of Government rules and regulations to employ and deal with labour by any other system.

Question.—Question 47—why do you suggest that conservation should be limited to seams 18 to 12?

Answer.—Those are the best coals in Jharia. These are the coals that the steel companies want.

Question.—Does it apply all over the Jharia field or only certain sections of the field.

Answer.—Generally speaking, all over, excepting, for instance, one of our collieries, Katras, at which 14 seam is bad coal.

Question.—In order to be able to spread the life of these seams 12 to 18, you should mix with the coal some coal from 10 to 11. Does it not follow that we should conserve 11 and 12 at the same time?

Answer.—You have got vast quantities of 10 and 11 in reserve in many properties.

Question. Have you any idea of the total output of 12 to 18 seams today?

Answer.—It is rather difficult to say. We may take it at between 6 and 8 million tons.

Question.—The steel companies will be using only 4 million tons or so. So there will be a surplus of 4 million tons of coking coal placed on the market for uses other than metallurgical. And

your only reason for no drastic interference in the output of these collieries engaged in extracting coal from 12 to 18 seams is that it will bring about a sort of paralysing effect on the industry and it will further accentuate the shortages which we experience today.

Answer.—Definitely. It is impossible to get other coal quickly.

Question.—I am still leaving out Karanpura which will be fully developed within the next five year's time. Subject to supply of alternative coals which may be required by industries other than steel would you see any objection to further curtailment of production of good coking coal?

Answer.—Except from the physical point of view, no.

Question.—In that connection, we have the considered opinion of Mr. Harrison, Mr. Kirby, Mr. Carver and two or three technical experts that 75 per cent of the mines in Jharia could be closed down or could cut down in output without any great loss. Conservation may force some collieries either to close down or restrict their output. They will no doubt be entitled to receive compensation and you have suggested that this compensation should be based on a level of profits before taxation equivalent to the average over the past five years. You will agree with me that the last five years have been a boon period for the coal industry.

Answer.—Not so in the case of our collieries. We are dealing with coking coals. Three of the collieries, producing best coking coals are paying dividends under 13 per cent. The boon has been in the case of the ordinary grades of coal only and not in the case of better classes of Jharia coals.

Question.—In respect of your suggestion that, as the steel companies are going to be the chief beneficiaries of this sort of conservation, they should bear a substantial portion of the cost, would not a case arise then for a sort of preferential price for steel?

Answer.—They are already getting that.

Question.—Would not a simpler solution be, in this case, for the State to acquire all these things instead of worrying about compensations costs, etc.?

Answer.—They will have to pay more.

Question.—Could you say what sort of facilities or assistance you think the Karanpura Development Company would need in order to be able to achieve an output of 9 million tons within the next five years.

Answer.—The first requirement is railway facilities. The Railway Board have already sanctioned two Branch lines. There is also a possibility that the RANCHI/GAYA line might pass through the Karanpura coalfield. If that took place, it would be of much benefit for de-

velopment. For the RANCHI/GAYA line, there are two possible alignments, one through RAY station, and the other, which is more favourable to this coalfield, would come down to the field in a North-Easterly direction from RANCHI and cross the existing lines near BARKAKANA. This would also be the shorter route to GAYA. We would in addition need to be granted assisted sidings or short branch lines as might be necessary to serve the collieries; any such further branch lines or assisted sidings would probably not be very extensive. We are now speaking of minor projects, but naturally if quick results are to be obtained, the Railways must come at the right time and quickly. Otherwise, development will be delayed.

117. WRITTEN EVIDENCE OF MAKERWAL COLLIERY, MARI INDUS (PUNJAB)

QUESTIONNAIRE I

General.

(1) The conditions which impressed the two Committees i.e., the Coalfields' Committee, 1920, and the Coal Mining Committee, 1937, to recommend control by the State over methods of extraction first working, depillaring etc., do not prevail at present.

The action taken by Government in increasing the powers of the Mines Department has proved satisfactory and adequate to some extent, but still much requires to be achieved in this direction, because adjustment of irregular boundaries is the main thing which can avoid wasteful and inefficient working of coal mines. In the interest of conservation of coal the power for granting of leases should vest in Central Government irrespective of provincial or District boundaries, so that irregular boundaries could be adjusted at the time of granting leases.

II

Grading and Exports.

(7) The regrading of coal seams is essential. It should be confined to seams as a whole where the seams are thin. For thicker seams the grading of sections should be continued.

(8) It is desirable that the grading of coal for the internal market should also be made compulsory.

IV

Railway Facilities.

(13) The Railway facilities in matter of supply of wagons etc., are not sufficient to cope with the increased movement of coal, and coal meant for nearer stations from the colliery should be despatched by means of motor trucks to be employed by Government or Railway or Colliery concerns. Sidings should be constructed to serve all collieries to reduce the working cost and with a view to ensure quick disposal of the coal raised.

(15) The present system of priority sanctions on the strength of which the supply of wagons at each colliery is made is proving quite satisfactory

as far as the supply of wagons is concerned. I think collieries should receive preference in matter of supply of wagons even if the present system of issuing sanctions is discontinued, and the coal should be classified under such class that it should receive preferential treatment next to movement of military traffic.

(16) Very few private weigh-bridges have been installed at the collieries, and I think the Railway while charging freight should install Railway weigh-bridge at each colliery or at each group of collieries so that the freightage of coal should be based on the weights found on the weigh-bridge and weighment certificates issued to the consigners. I think special encouragement is necessary for installation of weigh-bridges either by colliery owners or by the Railway.

(17) There is no complaint about the freight payment system which is in force at present, but the freight rate should be reduced to enable coal to be consigned to greater distances.

(18) The existing arrangements for grant of siding accommodation are far from being satisfactory. Each colliery or group of collieries which are nearby should be provided with siding facilities by the Railway or the State.

(19) The question of overloading and underloading of wagons can be automatically overcome when there will be weigh-bridges at the collieries. This would ensure the use of vehicles to capacity.

(22) It is not necessary to introduce seasonal rates for the transport of coal by rail as the raising season is the first quarter. If the proportionate clearance during this season is reduced it will affect the total output badly, and during the other half of the year, the season being slack, it may lead to irregular working if the demand is increased.

V

Raising Costs.

(23) The estimated figures of the cost of coal loaded direct into wagons in 1935, 1939 and a present can be studied when the Committee visits the Colliery.

(24) The mechanical coal-cutters have replaced manual coal-cutters to a satisfactory extent. With the mechanical coal-cutters the raising cost goes up as the coal-cutters have not been used to their full capacity which when done should bring down the cost to a desirable figure. The full capacity of the coal-cutting machine is not guided, because most of the time taken in fitting the machine from one face to another. The conditions in Indian coal mines are different than the other coal mining fields in the Continent. In the course of general development the working of coal cutting machine is desirable both in new and old fields except in cases of certain mines where nature of coal and disturbed strata are the handicaps.

(25) It is correct that the saving can be effected if rails are laid right upto the working face, but the experience shows there has not been much improvement in this respect.

VIII

Miscellaneous

(34) Lot of experiments were made on the briquetting of coal in the Punjab collieries specially with Makerwal Coal. Experience gained is that this Makerwal Coal requires some cheap binding material, which could be in parallel with the difference in price of steam coal and the slack coal. Generally the coal-tar is used as binding agent, but this is a very costly item and is not easily obtainable and adds to the cost of briquetting. Some sort of State encourage is necessary by conducting researches and by introduction of certain appliances by which coal could be heated to such a degree that without the use of binding agent the briquetting may be a success by using pressure only.

(35) Washing of coal has not so far been adopted. Coal washing may clear of some impurities and may also eliminate to some extent sulphur percentage of coal.

(38) Facilities for rescue arrangements in the Bengal and other coalfields are adequate, but there are no such facilities as far as Punjab collieries are concerned.

(39) The educational facilities have been very poor at the collieries. Central places among group of collieries should be selected where education both for boys and girls upto Matric Standard should be possible. These institutions should be helped partially by the collieries coming under that group and partially by the State and District Board Authorities. Certain criterion should be fixed so that each colliery having an output beyond that figure should be required to have at least one primary school and if required necessary aid should be furnished to the colliery.

(40) With a view to prevent the present migration of mining labour it is essential to have an increased standard of living facilities and availability of general necessities of life at constant rates and the lands acquired under Item 33 should be provided for cultivation to the settled labourers.

QUESTIONNAIRE II

I

CONSTITUTIONAL

1. The division of responsibility between the centre and the provinces that will arise on the lapse of emergency powers is not satisfactory and it will not be in the interest of proper development of the country's resources. In my opinion the Central Government should now enact legislation to vest in itself the power to regulate mines and mineral development and to control produc-

tion and distribution of coal. The Central Government should take over complete responsibilities with regard to the mineral resources in India and arrange for extensive geological surveys and the planning of roads and railways so that to make possible development of even the cut off areas containing mineral deposits

2. Essentially there should be one separate central department which should deal with all matters pertaining to the coal industry. This Central Department should be created under a Member of His Excellency the Viceroy's Executive Council dealing with all matters relating to mines and minerals including coal. With the creation of a separate department there should be a Board consisting of a number of persons representing the mineral industries from each province who can advise the Board on the economic possibilities of development of the minerals. The Board should consist of geologists, metallurgists, mining engineers, railway transport persons, civil engineers, mine owners, coal consumers, so that all questions with regard to finding of new mineral deposits and various transport problems could be discussed and tackled.

II

ECONOMICS OF THE COAL INDUSTRY

Structural organisation of the Industry

3. The present structure with regard to production in the coal industry is not satisfactory. Under this system the owners who are consumers as well attempt to work the quality of coal as per their own requirements and thus the inferior grades of coal get mostly neglected. The other producers at the same time have been attempting to sell their coal by working superior quality coal only during the slack season.

4. The system of Managing Agency is existing under the Companies Law and as such it must exist till the Companies Law is amended. I think the managing agencies could be replaced by general managers and superintendents as in the Railway Collieries.

5. No.

6. Some of the Railways owned collieries, for instance, at Giridih produce coking coal which should have been conserved without any further delay. The coal produced by the Railway collieries is not sufficient for the requirements of the Railway and again they have to depend on the other producers. These supplies are not as required for economic burning in the locomotives. In this manner Railway being the major consumer there is lot of wastage. The industry should be under private enterprise and the demand of the Railway can be met with as required by different types of consumption.

Ownership and Management.

7. I don't think that private ownership of mineral rights and the present system of grant of mining leases for working these properties has

led to the dissipation of coal resources, but it is true that the Government should discourage grant of lease of small holdings. The grant of leases of small blocks leads to big loss and the coal left in barrier is also the loss. I don't think that the present lease deed contains defective terms, but it is true that there is no supervising agency on the methods of workings of coal mines. Thus some of the lessees have worked the property in an absolutely unsatisfactory manner abandoning as soon as difficulties arose, otherwise there are no disadvantages that have resulted from the private ownership in coal.

8. The State should have supervising agency over the coal bearing properties and guide the owners in efficient working and in conservation of coal.

9. The Government should enact legislation authorizing State control over the power to lease coal bearing lands. The coal bearing areas in various provinces should be grouped in such a way so as to obtain the maximum quantity of coal irrespective of the provincial boundaries and the question of allocation of royalty payable to each province does not arise when the control is to be exercised by the Central Government.

Finance

11. I don't think that large number of concerns are under-capitalised.

12. Not necessary.

Production

13. It is true that the output per head is very low. The wages earned per head in the month of December in the years 1936, 1939 & 1945 are given below :—

Year.	Wages earned by coal cutters per head in the month of December.		
	Rs.	A.	Ps.
1936	0	14	9
1939	0	14	5
1945	2	10	0

14. For improving the output of Indian coal-mining labour, it is necessary that the labour should be hardy and they should be trained in machine mining.

15. I am not in favour of having any coal raising contractor. The system of introducing of coal raising contractors has resulted in unsystematic mining methods.

Distribution and Marketing

17 Only the price control should be sufficient if zonal grouping is done. The zonal grouping should be of different kind depending upon the quality of coal necessitated for different purposes. Collieries should be allotted zones for sale at fixed prices for different qualities of coal. The

consumers of each zone should form committees for the purchase of coal and thus arrange distribution amongst the consumers. It should be the responsibility of these committees to inform the Railway Authorities in due time for wagons required on which information the Railway should regulate the wagon supply.

18. Yes, but not ■ war-time practice. After complete analysis all coal supplies of different qualities for different consumers should be regulated. The range of qualities should be revised as far as possible to include inferior coal as well.

21. The various sizes of coal to meet the market demand should be as below :—

- | | |
|--------------------|--------------------|
| (a) Dust. | (b) Slack upto 2". |
| (c) Over 2" steam. | (d) Over 5" Lumps. |

Price and Profits

29. The Government should fix prices for all kinds of coal.

31. The Government intervention in matter of fixing of prices is necessary. The fixing of prices should be arranged through various committees or advisory boards, which should be set up for such mineral bearing province or zone.

32. In my opinion the difference between the present price as fixed in the present Colliery Control order and the required reasonable rate should range between Rs. 3/- and Rs. 5/- per ton so that the Colliery owners should have impetus. moreover, as the E.P.T. free production Bonuses have been introduced by the Government, similarly with a view to encourage production of coal I consider necessary that coal produced over the target figure should be free from Incometax and Supertax.

33. The calorific value of coal should be taken as basic for price fixing, but the minimum price should also be fixed taking into consideration the local working conditions and the lead for the carriage of the coal.

34. The system of introducing middlemen between the consumer and the colliery owner should be avoided altogether.

Taxation.

35. The coal industry in India is subjected to heavy taxation and multiple cesses, for instance, every consignee of coal is required to pay the following taxes :—

- (1) Sales Tax @ -/4/-.
- (2) Railway Freight.
- (3) Terminal Charges @ -/2/- per ton.
- (4) Transhipment charges @ -/4/6 per ton.
- (5) 20% Surcharge on total of R/ Freight, Terminal Charges and Transhipment Charges.
- (6) Welfare charges @ -/4/- per ton.
- (7) Production Charges @ 1/4/- per ton.

and then rates of ordinary incometax are also high enough, though these rates are not different for coal mines. As the conditions of working coal mines is quite different than other industries, therefore some relief is required to be given to colliery owners in matter of taxes if their production exceeds certain target.

III

CONSERVATION OF HIGH GRADE METALLURGICAL COAL

38. Definitely, there is a need for conserving the limited reserve of our better classes of coal in the interest of country's iron and steel industry, because sectional grading has already resulted in enormous waste. The working in the mines to be so regulated as to obtain maximum quantity of in situ.

47. The restriction is necessary and the state should compensate those who have got the lease of this metallurgical coal in such form, so that they could be amply compensated for not working these mines.

49. In my opinion the State should purchase outright all metallurgical coal and operate these mines through some agency whenever required.

V

CONSERVATION GENERALLY

55 & 58. The existing mining regulations regarding first working etc. are quite adequate if stowing is adopted. In the interest of stowing the State should arrange that the sand is made available at the pitheads whenever required, so that collieries desirous of stowing and extracting coal to the maximum can do so thereby recovering all the quantity of coal without unnecessary wastage.

64. There is a special need for developing the coal tar distillation industry in India as natural gases in this country are not sufficient.

VI

MINING LEASES AND FRAGMENTATION

67. Yes, the mining Rules require revision. The grant by local Governments of prospecting licences and mining leases is governed by the Mining Rules, which were framed by the Central Government, but these rules are not statutory for the Provincial Governments, hence these rules have been introduced for the guidance of the local Governments with a view to adopt a policy of uniformity in matter of grant of mining concessions, but these rules have no legal force behind these. The rules contain many defects and in fact the entire rules require wholesale revision, because these rules were first introduced as early as 1913, but now the conditions have abnormally changed and rules have to be framed or amended to suit the changed conditions. At present one of the conditions with regard to the

production of coal as given in Rule 50 (viii) is that the lessees shall work the mines in such a manner so as to produce sufficient mineral to earn royalty at least equal to the dead rent. At present the rate of dead rent is Re. 1 per acre and supposing a man has got mining lease for 100 acres, all that he is required is to produce coal which should earn royalty at the rate of $2\frac{1}{2}\%$ — 5% which are the prevailing rates for dust and steam coal respectively, i.e., the amount of this royalty should be equal to Rs. 100. This is not sufficient as no regard has been paid while fixing these rules to the thickness of the seam and other conditions of the length and breadth of the area. The main problem at present confronting the Committee is to frame rules in the best interest of conservation of coal and at the same time not to hamper the production of minerals.

Moreover, according to Proviso to Rule 45 one concessionaire can only hold total area not exceeding 10 sq. miles for minerals other than natural petroleum, but in case of natural petroleum a lessee can hold area upto 150 sq. miles. It will be in the interest of national economy if these limits are increased so as to avoid wastage as granting of mining leases of small holdings is suicidal.

The maximum term for which a mining lease is granted according to Rule 49 does not exceed 30 years. In my opinion the term for which the lease is granted should be 50 years instead of 30 years, so that a mining concessionaire may make a big investment for the development of the property, and the lessee should be given option of renewal after the lapse of the first term and also after the lapse of term of the first renewal.

At present there is no hard and fast rule for grant of certificate of approval to persons desiring to join mining business. As no prospecting licence or mining lease is granted except to a person holding a certificate of approval from the local Government this has resulted in mushroom growth of many concessionaires with no sound experience and no big capital. These concessionaires only work coal along the outcrop and all coal which is left in the hinterland is loss to the nation, because the idea of these persons is to make as much as they can out of this concession and not to develop the property in the best interest of state as owner of royalty. They have got no idea about the scientific and modern methods of mining and how to extract the maximum quantity of coal. In my opinion it is high time for the Government that there should be restrictions on the grant of certificate of approval and certificate of approval should only be granted to restricted persons who have got sufficient capital and have got wide experience in the line.

Moreover, the plans, which are prepared and submitted with the applications for the grant of mining concessions, are prepared from the Geological Survey of India sheets by unexperienced surveyors and there are no hard and fast rules for making these plans. In my opinion all coal bearing tracts should be planned and all these lands should be divided into squares irrespective

of the district or provincial boundaries bearing in mind the nature and extent of deposit, and the Government should allow blocks of land thus prepared by the Geological Survey of India while granting concessions. These plans can be prepared at the expense of the various applicants.

Rules should be framed so that the minimum acreage that one could hold should not be less than 1000 acres as at present it is laid down in some of the circulars that the minimum area one could hold should be 100 acres.

Moreover, in my opinion the Government should take over the surface rights of the coal bearing lands from the landowners instead of allowing each colliery owner to deal with the owners. All this will assist in the development of the property to the best extent and will help the transport of mineral from the mines to the forwarding station.

68. Yes, the levy of *salami* should be abolished.

69. The uneconomic colliery holding in my opinion means the holding of a small area by a man of no subsistence of 100 to 300 acres along the outcrop just with a view to extract few tons of coal by adopting crude mining methods. Efforts should be made to take as much hinterland as possible and less of length. All that the Rule 47 lays down is that the length of area held under mining lease should not exceed 4 times its breadth. I think the length should be further restricted so as to include in the mining lease land more of width than the length.

70. Uneconomic holdings are the major wasters of coal by wrongly working the deposits. Such holdings cannot afford to maintain proper staff and are thus guided by the discarded people of the trade. These holdings are again responsible for unsettled conditions in certain markets as they have no expenses to bear and can sell coal at much lower rates than well organised mining concessionaires. Again these holdings contribute a lot to the unsatisfactory condition of our labour. They tempt labour by promising a slight increase in rate and thus cause migration of this labour from a settled and comfortable life. If such holdings are required to work strictly in accordance with the scientific way they can never stand.

In my opinion the main factor responsible for the fragmentation of holdings is that there is no hard and fast supervision on the working of mines except for safety purposes which is done quite effectively by the Department of Mines officials. Moreover, in case of Mianwali and Campbellpur Districts which adjoin the boundary along the N.W.F. Province at the time of taking mining leases from the Government one has to restrict areas upto provincial boundary. Thus while granting concessions no regard should be paid for the provincial or the district boundary and this can only be done when the grant of mining leases is regulated by the Central Government. This will avoid wastage of coal to a considerable extent. Or, there may be cases when the outcrop may be

in one province, but coal can be carried only to the other province. The only remedy to avoid this is that the mining leases should be granted by the Central Government irrespective of the provincial boundary.

71 (i) Yes. I am in favour of necessary legislation to ensure that leased areas in future be of proper economic size. The existing problem of fragmentation of colliery holdings can be solved by State ownership of mineral rights and subsequent amalgamation of leases where possible by making purchases by the State, i.e. the State should purchase from the small holdings at the cost of holder of economic leased block, so that instead of dividing the labour there should be one well organised concessionaire, who could control the labour, finance the project and develop the property to the fuller extent and in the best interest of the State.

(ii) The appointment of a special officer to negotiate between the landlords and tenants is also a suitable method.

VII

OPENING OF NEW COALFIELDS

72. As far as I am aware no concessions of coal have so far been granted by the N.W.F. Province, and in my opinion there may be workable deposits of coal, but as the physical and geographical formation of these hills is such that all coal even extracted from N.W.F.P. lands can only be transported in the Punjab Province. All this will necessitate drilling or trial boring in the coal bearing horizon and these unworked areas may prove of immense value to the State, but in my opinion nothing can be done unless Central Government takes in its own hands the question of granting leases.

ORAL EVIDENCE OF MR. CHOONI LAL KAPUR, REPRESENTING THE MAKERWAL COLLIERY, PUNJAB.

At present eight mines are working the Makerwal area and the coal produced is mainly used for brick burning. Some of the coal is lumpy and could be utilised for other industrial purposes. The coal is highly volatile and contains a high percentage of sulphur (up to 5%). The Associated Cement Cos. at Wah have been using this coal for the last 15 years in their rotary kilns and in their boilers specially designed for this coal. Briquetters were made on a small scale and were supplied to the N. W. F. P. Army for heating purposes and the N. W. F. P. Government supplied molasses. Binding material is essential for successful briquetting of this coal. Some coal had been supplied to the N. W. R. for trial in their locomotives and in their stationary boilers, but the order was not repeated, nor was the matter pursued by the colliery in view of other military orders.

Punjab coal not being coking coal is not suitable for coal carbonisation.

2. The pillar and stall method of working is used by the Makerwal Colliery and the extraction in first workings is 10 to 12%. Output since 1935 has been as follows :—

1935	.	.	.	77,000 tons
1936	.	.	.	87,000 „
1937	.	.	.	98,000 „
1938	.	.	.	1,10,000 „
1939	.	.	.	1,17,000 „
1940	.	.	.	1,10,000 „
1941	.	.	.	1,07,000 „
1942	.	.	.	70,000 „
1943	.	.	.	45,000 „
1944	.	.	.	1,00,000 „
1945	.	.	.	83,000 „

The main reason for decrease in output since 1941 is lack of labour and also owing to short supply of wagons by the Railway till end of 1943.

The estimated reserves of coal are about 5 million tons.

3. Working expenses including transportation to Makerwal and loading into wagons have increased from Rs. 5-1-0 in 1935-36 to Rs. 15 in 1944-45 mainly due to increased wages of labour including the provision of increased amenities for labour and the increased cost of colliery stores and timber.

The underground mining labour is paid on tub basis and the present average daily earnings per group of miner and loader is between Rs. 5 and Rs. 6 (which means average earning per head ranges between Rs. 2-8-0 and Rs. 3). For securing a contented labour force help from Government is essential in providing a regular water supply and adequate protection against outlaws, etc. The sale price per ton of coal varied from Rs. 7 in 1939 to Rs. 20-10-6 in 1945. In addition provincial sales tax of 0-4-0 for every Rs. 100 of coal sold is paid by the colliery owners and a terminal tax of 0-2-0 per ton is charged on the despatches.

4. Mines in the Makerwal area are situated at some distance from the loading point (about 3½ miles from the Makerwal Terminus) and the coal is transported from the pit mouths by means of aerial ropeways and steam tramways. It is not possible for each owner to have his own tram lines, etc. and it will be a help in matter of production if sidings to be used jointly could be provided.

5. Leases of coal bearing lands are generally granted for 30 years with the option of renewal for a further period of 30 years. One of the conditions for the grant of mining leases is that the length of the area should not exceed four times its breadth. The maximum area that can be granted to one individual under mining lease, i.e. 10 sq. miles is not sufficient for proper working. The larger the area available for exploitation the greater will be the catch to work this area in a systematic manner as the leased land often contains unproductive lands also. The

sixty year lease period is, however, considered advisable. The coal in the Makerwal colliery lease hold has been worked for about 29 years and it is expected that all the estimated reserves are likely to be extracted during the period of next 31 years.

6. The collieries in the Punjab are owned by private individuals or private firms and no public limited company is working on a proper basis. There is an organisation called the Punjab Coal Mine Owners' Association and its function is mainly to make representations to authorities on points of common interests to colliery owners.

7. The N. W. R. give the benefit of the telegraphic freight rate for the transport of coal over 400 miles, and thus it gives advantage to the Bengal coal coming into Punjab. Distance from Makerwal to Lahore is only 200 miles and the freight payable comes to Rs. 6 per ton, while the freight on Bengal and Bihar coal works out to Rs. 13 per ton.

8. Some coal deposit at some distance from Makerwal Colliery is found in the N. W. F. P. territory and many representations were made to that Government for the grant of mining leases over that area which could be conveniently worked from Punjab side as the hills slope on this side, but to no effect. This indicates the desirability of a unified control over the grant of mining leases for coal.

118 WRITTEN EVIDENCE OF THE KHAS JHARIA COLLIERY CO.(1933), LTD AND THE EAST BHALGARA COLLIERY CO., LTD.

QUESTIONNAIRE I

I

(General)

1. (a) Control over dimensions of pillars and galleries, depillaring and working of thick seams has done a good deal of benefit to coal mining. It has attributed sufficiently to the safety of mines and men, and has stopped short-sighted greedy producer from spoiling valuable coal.

(b) Conditions are now so much improved that no control may seem necessary but if it be withdrawn, conditions may deteriorate resulting in tragedies necessitating once again, introduction of stricter control by State. Prevention is better than remedy.

(c) Improvement in condition of mine certainly justifies the power invested in Mines Department.

(d) Separate authority not necessary. It would have formed only an additional burden to taxpayer and an additional boss for the colliery officials to woo.

II

(Grading and Reports)

2. Since all authorities agree that our resources of high grade coal and specially coking coal are limited and as it is likely to be in greater demand in industrialisation of the country, export of this grade of coal should not be encouraged. Market for inferior coal should be explored and its export be encouraged.

7. Regrading is necessary only in cases where properties are extensive and in cases where first working is finished and depillaring is in operation. In the former case there is likelihood of change in quality from one part to another and in latter it is likely to change as it is well-nigh impossible to stick to a section specially when certain portion is to be left in roof.

In regrading, sectional grading should be continued in gallery working but seam as a whole, should be graded in pillaring. This will save loss of coal with its attendant danger of spontaneous heating and fire. Whole section will result in fall in quality and price but it will be compensated by increased quantity and safety.

Of course, with this arrangement difficulty will arise where panel system is in operation doing first and second working simultaneously.

8. Grading of coal for internal market is necessary and should be made compulsory. Consumers should be allotted coal of only such quality as will be most suitable for the purpose they need.

IV

(Railway Facilities)

19. Old system of allowing 2 tons more or less than the carrying capacity of wagons should be re-introduced.

V

(Raising costs)

24. More manual labour is still the order of the day in mines of our category. There are some mines in which solitary coal-cutter is introduced here and there. Their introduction increases cost thin; because, (i) they are not worked to their full capacity, and (ii) maintenance cost is high. They have never been used to their full capacity. This is due to the following reasons:—

(a) They are not followed by power drills which are essential for quick and efficient results.

(b) There is lack of trained and organised labour.

(c) In pillar and gallery work coal-cutters have to do a lot of flitting before they can do actual cutting.

In small or old collieries adoption of machine working should not be thought of.

25. Laying of rails right up to every working face is not possible in pillar and gallery work. They can be within a pillar's length from rise and dip galleries, whereas on levels they can be extended right up to face. No doubt attempt is now always made to bring in tram line as close to the working face as possible to attract labour. Its effect on cost is negligible.

VII

(Stowing)

31. *Voluntary stowing*.—No appreciable progress has been made in collieries of our category. This is because of the limited capacity of our mines. We have to do stowing and raising by

the same opening and by the same machinery. Raising must be maintained to its full capacity for subsistence and naturally stowing is given second place. There is also lack of stowing material. We must get more aid in form of money and loan of machinery and supply of stowing material at pit head.

Boring out-fit of American rope type be purchased by stowing board and 6" diameter holes at suitable points be drilled on properties doing voluntary stowing. These with sand delivered at these holes by aerial ropeways will very much improve things.

VIII

(Miscellaneous)

34. Briquetting is not necessary for our coking coal. It is only necessary for coal which is much friable as that of tertiary age. Deposits of this coal occur in Rajputana and Kutch and some experiments had met with success in Rajputana (Bikaner). Our inferior slack which has generally no market can be made marketable for steam raising purpose by briquetting.

35. This is yet only in experimental stage here. In Indian School of Mines experiments were carried on by Dr. Forrester and results recently appeared in Sketch. Messrs. Tatas are thinking of installing coal washing plant at their West Bokharo Colliery. By its installation coking coal containing high ash percentage can be made suitable for manufacturing good coke for metallurgical purpose. In South Africa coal washing is invariably done at all collieries. They reject something like 25% of their output which goes to the dumps and only 75% is booked for consumption. There the output from collieries varies from 3 to 10,000 tons per day.

Installation of washing plants at collieries raising inferior coal, which need it most, is out of question due to its exorbitant initial cost. Government or big consumers should install them in Central places close to these collieries. This will go a long way in conserving our high grade coal and refuse may be used for stowing.

36. In this coalfield there is a good lot of jhama. Its analysis show that it contains fixed carbon varying from 75 to 80% ash from 15 to 22%. Some of this is very difficult to ignite but some can be easily ignited and used as smokeless fuel. Some time before experiments were carried on and it was stated that it can be used in gas producer plants. But no serious attention has yet been paid for its economic working and use. It is estimated that in this coalfield we have got about 400 millions tons of this stuff. Special attention should be paid in finding out means of its extraction and use.

38. No occasion has yet arisen to test its capacity.

39. In collieries there are some elementary schools but there is absolutely no arrangement for adult education. Under welfare scheme some schools are contemplated. To make these schools successful they should be established

close to the dwellings or there should be means of conveying labour to these schools. Schools should be made attractive say by screening some educative films etc.

Education amongst labour is most urgent. Without it they cannot realise all that is being done for them and what they in return should do for the trade. Education should form item A. 1 of labour welfare.

40. For stabilising labour on colliery an earnest effort should be done to make its life comfortable and to achieve it we must have good housing arrangement, they must get all necessities of life and they should have some amenities which are not possible in villages. No doubt some improvement will be soon made under Labour Welfare Scheme. There will not be any dearth of rules and regulations for their welfare, only thing required is to put them in practice rigorously. Good lot of improvement in housing is urgently called for.

I think an attempt should be made to recruit labour from distant places as is done in tea gardens and they should be trained to work in collieries. This labour if once trained will be more stable than the local labour. Gorakhpur labour under D. U. L. S. has proved this fact.

A scheme to pay bonus to labour working on colliery for 8 or 9 months in a year should be introduced. This will give an incentive to labour to stick to their work for a longer time.

There is migration from colliery to colliery also ; this can be avoided if there is even distribution of consumer goods in all the collieries and standard scale of wages and other facilities throughout the field.

ORAL EVIDENCE OF MR. P. B. DANDEKAR OF THE EAST BHALGORA COLLIERY.

The East Bhalgora Colliery is working 11 and 12 seams and their output is 3,500. The coal is selected grade B. Khas Jharia (300 bighas) has seams Nos. 10, 11 and 12 (and a part of 14) and all the three are being worked producing 3,000 tons.

2. These two properties are continuous and installation of a common weigh-bridge for both the collieries will be of great help as loading is on the same siding. A minimum output of 5,000 tons along should justify the installation of a weigh-bridge. With the rebate of one anna per ton efforts could be made to have a private weigh-bridge even.

3. The raising cost in these collieries is Rs. 8-7-0 per ton of which 40% represents wages including amenities to labour, but not free ration and cloth costing about 13 annas per ton. At the present moment this cost is not high and no steps have yet been taken to reduce it. In fact there is a case for increasing the wages as the labour can get more in the villages and this will lessen the absenteeism which has been marked since March. Labour does not necessarily become lazy with high wages.

4. Labour recruits from Bilaspur, Hazaribagh and Giridih are more after money while Santhals and Baurris live from hand to mouth. Education may help to change them.

5. The question whether a particular colliery is economic or not depends on individual conditions as a colliery with only 30 or 40 bighas with thick seams outcropping will not be an uneconomic unit.

In Khas Jharia there is a 4 ft. thick seam (containing 20% ash) between seam No. 10 and 11 and 57 ft. below seam 11 but it cannot be worked without mechanical appliances.

East Bhalgora and Khas Jharia can be amalgamated and worked in one shaft but the royalty holders are not agreeable.

Irregular boundaries of colliery holdings should be straightened out if necessary compulsorily.

119. WRITTEN EVIDENCE OF M/S ANDERSON WRIGHT & CO., CALCUTTA

QUESTIONNAIRE No. 1.

Replies to your Questionnaire numbered I have been submitted jointly by the Indian Mining Association, Indian Mining Federation and Indian Colliery Owners Association and our views are generally in accord with those expressed therein but, being particularly interested in the development of the Bokaro Coalfield and in the possibilities of washing some of the coals from this field, we desire to submit the following answers as supplementary to those of the three Associations :—

Question 7.—It should be borne in mind that washed coal cannot be graded in Situ. It must be graded as loaded into wagons.

Question 18.—We give an example of great delay in the granting of siding accommodation by the East Indian Railway. In January 1944 we applied for a siding for Kujju Colliery in the Bokaro Coalfield but the East Indian Railway informed us that, owing to the shortage of material during the war, they were then unable to put a siding into the colliery, which would mean a siding of about 2½ miles, and they suggested as a temporary measure during the war that we transport the coal from Kujju Colliery by road to Ranchi Road Station, where a small siding to hold 5 wagons, extended later to 10 wagons, was sanctioned in March 1944. This siding was not opened for traffic by the Railway until the 21st August, 1944.

This arrangement necessitates our transporting the coal six miles by road from the colliery to the siding and despatches are thereby limited to a maximum of 10 wagons daily. Although we indent for 10 wagons daily, owing to restrictions etc. it is very seldom that 10 wagons are supplied with the result that despatches are in fact limited to about 3,000 tons per month.

Kuju Colliery mines Selected Grade B. Coal. The output is already over 5,000 tons per month and we can now increase this rapidly until it attains the target of 20,000 tons monthly. Owing to the unsuitability of the present arrangements for transport by lorries, which are subject to frequent breakdowns, and of the small siding at Ranchi Road, we have for several months been putting coal into stock. We have now reached the stage when we have no suitable ground available for stocking more coal and are, therefore, forced to restrict raisings.

To overcome this difficulty on the 11th January, 1946, we applied to the East Indian Railway for an assisted siding to be put into the colliery and a copy of our letter No. 209-258 dated 11th January 1946 to the Chief Operating Superintendent, East Indian Railway, is attached. The Railway acknowledged receipt of this letter on the 18th January. In spite of reminders and our warning the Railway that delay would result in restriction of output, we have up-to-date (8th April, 1946) heard nothing further.

Question 21.—The introduction of the group system of railway freight in the Bokaro field should be considered. Owing to its location and the accident of existing railway access to this field, it is at a disadvantage as compared with the Jharia field in respect of despatches in both the upcountry and downcountry directions. This anomaly should be removed by the application to the Bokaro field of the Jharia freight rates.

COPY

Ref. BR No. 205-258

11th January 1946.

The Chief Operating Superintendent,
East Indian Railway,
Calcutta.

Kuju Colliery.

DEAR SIR,

Kuju Colliery is situated about $2\frac{1}{2}$ miles W. N. W. of a point about mile 239 between Chainpur and Ranchi Road Stations on the Gomoh-Barkakhana Section of the E. I. Rly.

The area of the property is 1272.92 bighas and the reserves of coal are estimated to be 11,000,000 tons of Selected Grade coal in the Kuju seam 20 ft. thick and over 21,000,000 tons of Grade 1 coal in other seams.

During the past two years we have been working this colliery under the emergency arrangement by which we transport the coal by lorry and despatch it from the temporary siding at Ranchi Road Station. This siding accommodates 10 wagons only and as a result we have to limit the output.

We now wish to proceed with the full development of this colliery. It is our intention to develop it to produce 20,000 tons of coal monthly but to enable us to do this a Railway Siding into the property is necessary.

Access to the Colliery by rail is not difficult and we attach hereto a plan (Plan Ref. K.99) showing a proposed alignment from mile 239

near culvert 214 between Chainpur and Ranchi Road. The rail level at this spot is about 1278.5 ft. above datum. The proposed alignment follows just below the 1300 ft. contour for about half a mile then crosses the 1350 contour for about $1\frac{1}{4}$ miles from Kuju on the Kuju Chainpur Cart road. From here the surface drops to 1300 near the Colliery, a mile away. There are a few small nullas to cross, but these are not difficult.

We shall be glad to know whether you are prepared to put in an assisted siding on the alignment indicated to serve this Colliery.

Yours faithfully,

For and on behalf of

BOKARO AND RAMGUR LTD.

Sd. ANDERSON WRIGHT & CO.,

Managing Agents.

ORAL EVIDENCE OF MR. J. P. EVANS REPRESENTING M/S. ANDERSON WRIGHT & CO., CALCUTTA.

1. *Question.*—You referred in your first letter to difficulties in the matter of a siding at your Kuju Colliery. What is the position?

Answer.—Under a temporary arrangement we transport coal by road from the colliery to Ranchi Road Station, a distance of 6 miles, and there we have a siding for 10 wagons. At the moment Kuju colliery is capable of raising 7,000 tons per month but despatches are limited to about 3,000 tons per month by the present siding capacity of 10 wagons daily. 10 wagons daily is equivalent to about 5,000 tons per month but we are unable to despatch more than an average of 6 to 7 wagons daily owing to restrictions and short wagon supplies. Stocks at the colliery have accumulated and the present position is that our stocking grounds are full. There is no alternative, therefore, but to reduce raisings.

In January 1946 we applied to the East Indian Railway for an assisted siding. We originally wrote to them in 1944 and the East Indian Railway asked us to defer the matter of an assisted siding and to accept the temporary arrangement at Ranchi Road during the war. This we agreed to do but we applied in January 1946, after termination of the war, for the assisted siding which would enable the colliery to proceed with its development up to its target output of 20,000 tons per month. We have sent several reminders to the East Indian Railway but we have not received even an acknowledgment up to date.

2. *Question.*—Could you tell us as to the best method of tackling this siding issue for the future, not only in respect of your colliery, but generally of the siding difficulties experienced by many colliery operators also.

Answer.—In my opinion it is the internal organisation of the Railway that is responsible for the delay in dealing with applications for sidings.

3. *Question.*—What do you think of the suggestion which has been put to us that all applications for sidings should be placed before a Board consisting of members of the trade and industry, Government and Railways?

Answer.—I doubt whether the formation of such Board to consider applications for sidings would expedite matters. On the contrary, it may delay them still further. Better co-ordination between the various departments within the Railway organisation is the solution.

4. *Question.*—You have expressed yourself in favour of a group system of freight for the Bokaro field. I can see the advantages particularly at this stage to that field. Would you consider that a similar system if applied to the Raniganj field will be beneficial to the industry?

Answer.—I think that a group system of freight applied to the Raniganj field would be beneficial. Such a system has worked well in the Jharia field and it would work equally well in the Bokaro field and Raniganj field. We have no collieries in the Raniganj field: our collieries being in the Bokaro field and the Jharia field.

5. *Question.*—Is it your suggestion that the whole quantum of freight should be the same as it is for the Jharia field?

Answer.—Yes. I think it should be the same.

6. *Question.*—You have suggested that the present ownership of mineral rights has resulted in at least one case in hindering development on scientific lines. Are you referring to the West Bokaro field?

Answer.—Yes.

7. *Question.*—You have stated that some royalty owners have undertaken large scale prospecting operations without the possibility of obtaining any appreciable return for a considerable period. A general statement has been put to us that if a large field of the size of Bokaro or Karanpura were handed over for exploitation, there is a possibility that such prospecting licence holders may hold up the development of the field waiting for a considerable time when they can make the most money. Do you think from your experience of the coalfields in this part of the world whether these considerations sway with the people who hold the prospecting licences?

Answer.—I must admit that in times when things were so very bad for the coal trade, when good quality coal was selling at Rs. 2-12-0 per ton, development may have been held up but not with the deliberate object of waiting for more profitable times. It is a matter of economics; during a slump the finance necessary for prospecting may not be available and when coal mining is unprofitable and output exceeds demand as it did over about 10 years prior to 1937 further development is unlikely to be an economic

proposition. But if times are reasonably normal it is in the interest of the licence holder to expedite the development. The life of a licence is limited and it is in the holders interest to proceed as rapidly as possible with the development.

8. *Question.*—The basic idea is a proper development of a field in a reasonable time and if one party is entrusted with the task you cannot expect him to be able to develop the field within the short period of the prospecting licence adequately or properly.

Answer.—This depends on the period of the prospecting licence and in my opinion it is preferable for one party to prospect a fairly large area because the information gained by the geologists in different parts of the field would enable proper correlation of seams. It is not possible to obtain a complete geological picture of the field by piecemeal prospecting.

9. *Question.*—Do you think if a prospecting licence is given to one party, no matter what the size of the area is, if no development takes place and the party does not take out mining leases over that area, that party should be given the chance to keep on possessing the prospecting licence?

Answer.—If within reasonable time no development takes place and the party does not take up mining leases, I think the prospecting licence should not be renewed when it expires. One important argument against giving prospecting licences to small parties is the quantity of equipment which might be required, heavy equipment for boring, etc. such as large drills. These are costly and might be beyond the means of small parties. It must be remembered that prospecting is a speculative business and may or may not ultimately prove to be profitable.

10. *Question.*—With regard to the West Bokaro colliery, has any change taken place?

Answer.—No.

11. *Question.*—When was your prospecting licence taken?

Answer.—1907.

12. *Question.*—There is only one prospecting licence from one party?

Answer.—Yes, only one from the Raja of Ramgarh.

13. *Question.*—What is the period of time mentioned there during which prospecting has to be completed?

Answer.—The period has been extended from time to time.

14. *Question.*—What was the initial period?

Answer.—3 years, which was extended by periods of 5 years, 7 years and even 10 years.

15. *Question.*—There is no limitation as to the area under the Government rules for prospecting work, but the Government rules definitely intend short periods being fixed for prospecting work, one year or so.

Answer.—It is very unwise. It will make it absolutely impossible to prospect the areas properly.

16. *Question.*—In a way it reflects on the size. You cannot lock a huge area and keep it in your hands without development. If proper prospecting has to be done it has to be done during a long time ; but I take it that the Government's intention in fixing shorter periods is that prospecting should be limited to a small area.

Answer.—I do not say that the period should be unlimited. The limitation should be reasonable and the period should be sufficiently long to enable proper prospecting operations to be undertaken. The minimum should be at least 5 years.

17. *Question.*—There should be some limitation as regards the period of prospecting licence as also the area ?

Answer.—Subject to what I have already said the period of prospecting licence should be limited, as also the area, but these limitations should not be small.

18. *Question.*—About the lease granted by Bokaro and Ramgur Ltd., to the Governor-General in Council. Is that a colliery lease ?

Answer.—The lease granted to the Governor-General in Council in 1944 was for a small area of 419 bighas. It is a mining lease.

19. *Question.*—When did you take the mining lease in respect of that area ?

Answer.—In 1944.

20. *Question.*—And you granted the sub-lease in the same year ?

Answer.—Yes.

21. *Question.*—What was the royalty or salami that you paid in 1944 to the Raja of Ramgarh under this mining lease and what other royalty and salami have you charged to the Governor-General ?

Answer.—We paid Rs. 40 and we charged Rs. 300 from the Railways.

22. *Question.*—What are the terms according to which you sub-leased this area to the Governor-General in Council ?

Answer.—The same terms as in the Kargali leases.

23. *Question.*—Without keeping any profit ?

Answer.—The profits are in the different rates of royalty. On steam coal the Railways pay us 8 annas and we pay four annas to the Raja.

I might mention that in respect of the leases granted to the E. I. and B. N. Railways we made no profit at all, neither salami nor royalty.

24. *Question.*—What is the period of the mining lease in your case ?

Answer.—999 years.

25. *Question.*—Do you not think that 999 years is too long a period ?

Answer.—It means in other words a perpetual lease.

26. *Question.*—Do you think that such lengthy period is necessary ?

Answer.—I see no objection to it. 999 years means that the lease is for the life of the colliery.

27. *Question.*—Do you think the present period under rules of Government regarding grant of lease for 30 years and a renewal for 30 years too short ?

Answer.—A mining lease for a limited period of 30 years, even with the possibility of a renewal for a further 30 years, is inadvisable. Proper development on scientific lines entails heavy capital expenditure and a lessee would hesitate to commit himself to heavy capital expenditure necessary to equip the colliery properly if he knows that the lease might expire after he has worked out only a portion of the coal. Short leases of this nature would encourage working of the coal most easily obtained, leaving the difficult coal, and would militate against proper and scientific development.

28. *Question.*—If you lease out a large area and fix 999 years as the period there might be a tendency to go slow in the development of the mine ?

Answer.—I do not agree. On the contrary lessee who knows that he will remain in possession until all the coal is worked out would be prepared to invest in the large amount of capital expenditure necessary for proper development. It would obviously be in the lessee's interest to develop the mine as rapidly as possible to procure the largest output rapidly, thereby spreading his expenditure over a greater tonnage and over a longer period. Long leases would encourage original mechanisation, which short leases would discourage. We intend to mechanise our now collieries to the greatest extent possible.

29. *Question.*—In reply to question 7 you have mentioned "the present system of ownership of mineral rights and the uncontrolled grant of leases has in at least one case resulted in hindering the development on scientific lines through the reluctance of the landlord to amend clauses in leases which obstruct adoption of modern methods of treatment of coal e.g. the crushing during process of washing". Will you kindly explain that ?

Answer.—This has reference to old leases. In the washing system contemplated by us the coal has to be crushed. We propose to crush the coal to a maximum of 4 inches but it may be washed up to a maximum of 8 or even 9 inches. Our leases state that the coal must be mined in such a manner as to produce the largest possible quantity of steam coal and they also provide that all sizes must be kept separate and despatched separately. If the coal is to be washed this is not possible owing to the fact, as stated, that the coal must be crushed to some extent before passing through the washing plant. The terms of our leases do not allow this.

30. *Question.*—Did you approach the Raja of Ramgarh on this and what did he say ?

Answer.—He has not amended the lease yet. We have been discussing this matter with him for about 18 months.

Question 31.—The lease itself has not been granted. This is one of the points in dispute?

Answer.—Yes.

Question 32.—Do you consider that coal from the Bokaro coalfield can be used as mother coal in the coke ovens, i.e. without blending with other coals?

Answer.—Coal from the Bokaro coalfield cannot be used as mother coal as it is too soft.

Question 33.—It needs blending with coking coals of Jharia?

Answer.—It needs blending with other coals of the Jharia field and I believe that the blend is in the neighbourhood of 40 per cent. Bokaro coal.

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QUESTIONNAIRE. II

- 1.
2. Yes, a separate department under an executive but it should work in full co-operation of the coal mines, owners, Consumers and the Coal merchants, the most important link between them.
3. Any alteration either will not make much difference except when you will like to preserve a certain variety of coal for its valid reasons.
4.
5. Yes, but only through the coal merchants who work as the middle agents between the producer and consumer.
6. Not very healthy either.
7.
8. No.
9.
10. Yes. The private ownership in the production, disposal of coal is the only appropriate and healthy treat. The government may, if they find it expedient in the interest of the public and general welfare apply control over the production or distribution, but not in its marketing.
11. No. Even if it may be true, it is not the reason for it. It will be more effective if the Government may by legislation or so direct such measures and assistance to the colliery owners in advising the genuine expert opinion or the need for the necessary equipment and techniques etc. required by them.

12.

13.

14. Their wages should be increased to afford them a decent and well fed living. Intoxicants like wines etc. must be prohibited in the coal fields.

15.

16. Most surely for this will help to assist the important industries in establishing themselves in this country.

17. No. The control of prices and distribution may be useful for the time being. No, Zonal or regional scheme for the marketing is desirable.

(a) *State.*—The state must only see that the Coking and high quality coals are usefully preserved in the national interest and that the coal is properly distributed to the deserving industries and also watch that the prices remain within controlled limits, in full co-operation with the other interests e.g., Colliery, Coal-merchants and consumers.

(b) *Collieries.*—They must raise coal and manufacture coke to their maximum strength and take care to supply only the genuine quality and co-operate with the coal merchants who definitely represents the consumers interests. They should also equip their works with all the latest modern methods to reduce the expense ratio and at the same time giving a decent wages to the labour.

(c) *Merchant and Broker.*—This class forms the most important part of coal disposal and marketing in the country which has served the trade in most ways and capacities and advantages to the consumers. This class as a matter of fact represents the consumer interests. A merchant has enormous responsibilities on behalf of the consumers at distant places must have a voice in all matters concerning quality, rate of coal and their remuneration too must be decently provided. This class can serve a better guide to the Government, consumer and collieries.

(d) *Consumer.*—Consumers interest is only to get his adequate requirement of coal. They always prefer a supply through a coal agent who is of enormous assistance to them in establishing contact with the Government collieries and further arranging supplies for them from the best available quality on the collieries.

18. A complete analysis is essential and different qualities may be reserved for different purposes or class of industries.

19. No.

20. Central marketing agency has no meaning. A Coal merchant has a responsibility towards the consumer to arrange for genuine supplies which is only possible when the colliery fully co-operates with him. As a matter of fact a Coal merchant should have complete option to accept or reject or direct the quality of coal and coke with

colliery otherwise the colliery is responsible for any consequences for the complaints.

21. Steam coal should be loaded with size over 3", slack or dust below 1", Soft coke not above 3", Hardcoke above 3".

22.

23. No. This will entail unnecessary loss to the consuming public.

24.

25.

26. Yes.

27.

28.

29. Yes. Competition is always healthy factor in reducing the prices. If the prices actually across fair level, Government may retain power to control the same. But the choice of quality should rest with the consumer's interest through his coal agent which will keep lower level of prices.

30. Quite likely.

31. A representative body of coal mineowner, consumer, Coal merchant and a Government Official should co-operate and arrive at limit of prices for each quality of coal and coke, leaving a due margin to each concerned to manage affairs honourably.

32. May be worked out by the joint board advised in No. 31 above.

33. May be worked out by the joint board advised in No. 31 above.

34. A consumer has never to complain about the price of coal or the middleman's charges either, it is the quality that strikes him which has hitherto been not satisfactory because the interest of the colliery owner had been kept uppermost and the say of the middleman was not well regarded. A middleman is certainly the most convenient link between the consumer and colliery owner and a consumer has a regard for him and the colliery owner too must feel very much inconvenienced, through the agency of coal merchants. The middleman's charges must never be less than 20 per cent. because the transactions generally smaller than compared to foreign countries or other commodities.

35.

36. The export of coal must be rigidly restricted for the development and reconstruction of the national industries need preservation of coal.

37.

38. Metallurgical coal is that which can be availed in iron process like foundry and casting etc. Poor deposits are said to be existing in the country.

39.

40.

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49.

50. With higher calorific and carbon value and lower ash. Deposits are said to be small.

51. Yes. Such coal can be preserved for essential works where inferior qualities do not suit.

52. This should be decided by experts.

53. State ownership will not be desired in any case.

54. Matter for Government statistics.

55.

56.

57.

58.

59.

60—69.

70.

71.

72.

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75.

Short Comment.

In normal times all the coal was being purchased according to the choice of the consumers and consumers were having the advantage of purchasing coal at moderate prices such as Rs. 4/- to Rs. 5/- per ton.

There was no difficulty in obtaining coal required to any quantity at prices stated above as wagons were freely available.

An organisation made by the Government will entail heavy cost and consequently the prices of coal will be correspondingly higher.

With the central marketing committee, the consumers will lose the liberty to choose the quality of coal needed by them and also they will lose heavily because they may not be able to avail of the slump in prices which generally follows the war period. It is therefore only expedient that all efforts must be made to make the trade freer and stable as it was in the prewar times. A spirit of competition must be evolved which will reduce the prices and improve the quality of supplies also. Services of coal merchants had mostly been availed and always appreciated.

ORAL EVIDENCE OF MR. B. D. GROVER OF THE
CENTRAL COAL CO., LAHORE.

Middlemen render considerable services to consumers and their continued existence is very desirable. But their commission should be at least 20 per cent of the price of coal i.e., about Rs. 3/- per ton at present as against 4 annas a ton before the war (when the price of coal was Rs. 2/- per ton) and Rs. 1/8/- a ton now admissible. The increase is justified on the ground of a much curtailed turn over of coal in the hands of merchants. Middlemen would also welcome abolition of the control over the price of coal.

121—WRITTEN EVIDENCE OF M/S THE ASSOCIATED CEMENT COS., LTD.

Questionnaire

I GENERAL

Question 1.—Do you consider that the conditions which impressed the two Committees to recommend control by the State over methods of extraction, first working, depillaring, rotation and isolation of workings, dimensions and position of barriers, measures to extinguish or circumscribe existing fires in closed-down collieries which are dangerous to life or property, treatment of abandoned mines, etc., still prevail?

Do you consider that the action taken by Government by increasing the powers of the Mines Department and by establishing a Coal Mines Stowing Board have proved satisfactory and adequate or do you consider that further action by Government through the same media is required and, if so, what action? Do you consider that greater progress towards the amelioration of the conditions which impressed the two Committees would have been achieved by the introduction of a Statutory Authority on the lines suggested by the 1937 Committee?

Answer.—The conditions mentioned above are still existing, but to a lesser degree, due to increase in the powers of the Mines Department and to the creation of the Stowing Board.

Action taken by Government has proved satisfactory, but further action is required to make stowing compulsory with a view to conservation of coal.

II GRADING AND EXPORTS

Question 2.—In view of the various plans for industrial development, which must of necessity make an increasing call on the coal resources of the land, do you consider that the emphasis laid on the coal

export trade by the Indian Coal Committee, 1925 retains as much validity now as twenty years ago? If so, is it necessary to take any special measures for pushing Indian coal in markets which were temporarily cut off during the war?

Answer.—No remarks.

Question 3.—What influence has grading had in re-instating Indian coal in foreign markets and in Indian ports?

Answer.—No remarks.

Question 4.—How have the prices of Indian coal compared with the prices of South African and other competing coals in (a) foreign, and (b) Indian ports during the five years preceding the war?

Answer.—Can be obtained from Indian Coal Statistics.

Question 5.—Have existing monetary concessions in respect of export coal provided adequate for the purpose of stimulating the export of suitable coal from Calcutta to Indian and foreign ports?

Answer.—No remarks.

Question 6.—Give the average rail freight charges for coal to (a) Madras, (b) Bombay, and (c) Karachi from the Bengal/Bihar fields and indicate the level of sea freights from Calcutta at which shipments to these ports become economical in comparison with the rail route.

Answer.—No remarks.

Question 7.—It has been suggested that a re-grading of coal seams has become necessary. Do you agree? If regrading is to be done, should it be confined to seams as a whole, or should the grading of sections of seams be continued as under the Coal Grading Board Act?

Answer.—We consider that regrading of some seams may be necessary. If regrading is to be done, it should be confined to particular portions of the seams as development proceeds.

Question 8.—Is the grading of coal for the internal market desirable? Should it be made compulsory or should it remain discretionary?

Answer.—Yes, But it should not be made compulsory.

Question 9.—Do exporters of coal consider that quotations in sterling will assist them in overseas markets?

Answer.—No remarks.

III PORT FACILITIES

Question 10.—What loading facilities (berths, mechanical loading plant, etc.) are now available at Calcutta Port for handling coal shipments? Are any developments or extensions contemplated? If so, what is their nature?

Answer.—No remarks.

Question 11.—Are unloading facilities for coal at other Indian ports adequate?

Answer.—Generally speaking the facilities for unloading of coal at most of the Indian ports are inadequate.

Question 12.—What bunkering facilities are available at the various Indian ports and are they adequate ?

Answer.—No remarks.

IV

RAILWAY FACILITIES

Question 13.—It is estimated that the all-India requirements of coal for the next two years will be approximately thirty-two million tons, of which about twenty-eight million tons must come from the Bengal/Bihar fields. Are there enough Railway facilities *e.g.*, wagons, track, power, sidings, personnel, etc., to cope with such a movement of coal ? If not, what measures can be taken ?

Answer.—The Railway facilities are not enough at the present moment to handle the present traffic of 25 million tons, leave alone the anticipated requirements of 32 million tons.

We feel an improvement can be effected only by a Committee of enquiry.

Question 14.—Though the Indian Coal Committee, 1925, recommended the 10-hour system of supplying wagons to collieries, the position remains practically unchanged. What are the reasons for this and is a change from the existing position necessary ?

Answer.—There is no standard system of supplying wagons to Collieries. We would prefer that the wagons are always available for the 24 hours of the working day.

Question 15.—On the assumption that the present method of allotment of wagons for coal will cease, do you regard the method of allotment in force in 1940 as satisfactory ? Or are there any changes you wish to suggest ?

Answer.—Whatever system is introduced it should be adhered to.

Question 16.—To what extent have private weigh-bridges been installed at collieries ? What is the policy of the Railways in this matter ? Why was the rebate of 0-1-0 per ton allowed to collieries installing private weigh-bridges withdrawn on the Bengal Nagpur Railway ? Is any special encouragement necessary for the installation of private weigh-bridges either for an initial period or permanently ?

Answer.—The concession of Re. -/1/- per ton should be a permanent concession to compensate Collieries for the capital expenditure incurred.

Question 17.—Are there any complaints about the freight payment system in force at present ?

Answer.—No remarks.

Question 18.—It is alleged that arrangements for the grant of siding accommodation are unsatisfactory. If so, in what respect are they unsatisfactory and what improvements are necessary ?

Answer.—Grants of siding accommodation are at times considerably delayed. The power of grant of sidings should be vested to a Committee consisting of Railways and the Coal Trade. The terms of the siding agreement call for revision.

Question 19.—Are there any complaints in regard to the overloading and underloading of coal wagons ? Have you any suggestions for overcoming difficulties, if any ?

Answer.—At present wagons must be loaded to actual carrying capacity. Previously 1 ton overload and 2 tons underload were allowed. This margin should be reinstated. When Collieries have their own weigh-bridges the question will not arise.

Question 20.—To what extent are mechanical loading appliances in use in the coal fields ? What is their capacity and what supply of open wagons is necessary to cope with this capacity ? To what extent can the demand for open wagons be met at present and what measures can be taken to cope with the unsatisfied demand ? Does there exist any proved adaptation of a covered wagon which can be utilised for loading by mechanical means ? If so, are any developments in that direction contemplated in India ?

Answer.—No remarks.

Question 21.—As existing freight rates from the Raniganj field often place a colliery at a competitive disadvantage with another colliery producing the same quality of coal, it was suggested by the Indian Coal Committee, 1925 that the question of introducing the group system of railway freight rates in this field should be considered. The recommendation was not accepted by Government ; but do you consider it feasible and if so, what should be the details of such a system ?

Answer.—No remarks.

Question 22.—How far is it desirable and possible to introduce seasonal rates for the transport of coal by rail, so as to encourage consumers to obtain their coal in the second half of the year ?

Answer.—It might appear attractive to major industries only.

V

RAISING COSTS

Question 23.—The Committee would welcome the estimated figures of the cost of coal loaded direct into wagons for various mines in 1935, 1939 and at present. An analysis of costs in the manner usually maintained by each company is also desired

Answer.—No remarks.

Question 24.—To what extent have mechanical coal-cutters replaced manual coal-cutting ? What is the experience gained as regards the effect of mechanical coal-cutters on raising costs ? Has it been possible to use such coal-cutters to their full capacity ? If not, what have been the obstacles ? Is a general development in favour of mechanisation desirable and possible in (a) old, and (b) new fields in this country ?

Answer.—No remarks as we have started our Colliery only in 1944.

Question 25.—The Indian Coal Committee, 1925, considered that some saving could be effected in

rails are laid up to the working face. Has there been any development towards this and what has been the experience gained ?

Answer.—There is a general tendency to lay rails as close to the face as possible and this is appreciated by labour with consequent better results in increased outputs.

VI.

RAILWAY COAL REQUIREMENTS

Question 26.—What is the policy of the Railway regarding the procurement of their coal requirements in future ?

Answer.—No remarks.

Question 27.—What is the quantity of coal used by the Railways for their different services over the last ten years ? How much of it and of what qualities has come from their own collieries in each year ? Please also indicate the qualities and quantities obtained from each of the other supplying fields.

Answer.—No remarks.

Question 28.—What grade of coal (on ash percentage basis) are the present standard locomotives designed to use ? Have any modifications or adaptations been made to suit them and/or previous standard locomotives for burning a different grade of coal ? Please give the number of locomotives, of present and earlier standards which have been adapted for burning different grades of coal and which have not been so adapted.

Answer.—No remarks.

Question 29.—What has been the general experience gained regarding adapted locomotives, and depending thereon, what is the possibility of adapting other existing locomotives ?

Answer.—No remarks.

Question 30.—From the point of view of coal requirements, what is the policy being followed in ordinary new locomotives ?

Answer.—No remarks.

VII

STOWING

Question 31.—What measure of success has attended the operations of the Coal Mines Stowing Board ? What obstacles, if any, have been encountered, in particular with regard to voluntary stowing which is alleged to be still restricted in extent ? If these obstacles are removed, is voluntary stowing likely to increase, and if so, to what extent ?

Answer.—Coal Mines Stowing Board in its short duration has done good work in providing means of dealing with fires which threatened large mining areas.

Question 32.—The Committee will appreciate if every colliery doing stowing will furnish information about the cost (both surface and underground) of stowing, including all operations.

Answer.—Not available.

VIII

MISCELLANEOUS

Question 33.—It has been frequently suggested that Section 84 of the Bengal Tenancy Act should be amended to facilitate the summary acquisition of surface rights over land for colliery purposes. Have difficulties continued to be experienced due to the absence of this power and, if so, of what nature and degree of acuteness ?

Answer.—No remarks.

Question 34.—Some experiments have been made in this country on the briquetting of coal. What is the experience gained and what is the need for and possibility of commercial development of briquetting in India ?

Answer.—No remarks.

Question 35.—What results have been achieved in this country in regard to the washing of coal ? What is the significance of these results in relation to the needs of the iron and steel industry and other consumers ? What are the economics of coal washing ?

Answer.—So far very little progress has been made in this direction and whatever has been done is on a small scale by different individuals.

This problem is a complicated one and whether a coal seam is amenable to washing depends upon the physical character of its constituents and a physical survey of coal seam is necessary before washing could be adopted.

Question 36.—Previous Committees had recommended the establishment in India of a Fuel Research Institute and this has been implemented by the Government of India recently. Comprehensive plans for research have been drawn up. Are there any points you wish to raise in this connection ?

Answer.—Fuel Research Board should be established.

Question 37.—What progress has been made in the recovery of benzol as a bye-product in the manufacture of metallurgical coke ? Is any special encouragement necessary to facilitate progress in this matter ?

Answer.—No remarks.

Question 38.—Are existing facilities for rescue arrangements in the coalfields adequate ?

Answer.—No. These should be extended.

Question 39.—What educational facilities, either State or private, are available in the coalfields now and what improvements, if any, should be made or are contemplated ?

Answer.—No educational facilities are available where our group of Collieries are situated.

Question 40.—A settled and contented labour force is an essential foundation for a stabilised industry. What steps do you consider should be taken to induce the present migratory coalfields' labour to become a settled mining community ?

Answer.—A settled and contented mining labour is impossible at the present time because most of these are agriculturists and therefore, they leave Colliery work as and when their presence is required to attend to their fields. Perhaps after a time, with compulsory primary education and more comforts, better housing facilities at the Colliery, may turn him into a permanent settler at the Colliery.

Questionnaire II

I

CONSTITUTIONAL

Question 1.—Under the Government of India Act, 1935, the power to regulate labour and safety in mines is vested in the Central Government. The Central Government is also competent to deal with the regulation of mines and mineral development to the extent to which such regulation and development under Central control is declared by Central legislation to be expedient in the public interest. In the absence of such legislation, or to the extent to which Central legislation has not vested power in the Central Government, the regulation of mines and mineral development is to be dealt with by Provincial Governments. Trade and commerce within the Provinces and the production, supply and distribution of goods (including coal) also come within the sphere of Provincial control. No central legislation has been enacted so far to vest in the Central Government power to regulate mines and mineral development. But, during the present war, the Central Government has been able to exercise powers in these matters and also in the regulation of the production and distribution of coal, amongst other things, by virtue of emergency powers taken. With the abatement of these emergency powers, the position stated earlier will be recreated. Do you consider that the division of responsibility between the Centre and the Provinces that will arise on the lapse of emergency powers is satisfactory? Or do you consider that the Central Government should now enact legislation to vest in itself the power to regulate mines and mineral development and to control the production and distribution of coal? Alternatively, would you consider it satisfactory if the Central Government took powers in respect of certain matters only and left the rest for Provincial control? If so, in what matters should the Central Government operate, in your opinion?

Answer.—We do not consider the division of responsibility for the Coal Mining Industry between the Provinces and the Central Government is satisfactory.

We are of opinion that the Central Government should take over powers from the Provincial Governments to regulate all matters in connection with mines and mineral development.

We consider that the Central Government should take over all powers.

Question 2.—If you consider that the Central Government should assume power over coal mines and the coal industry, do you agree with the pro-

posal which has been frequently made of late that there should be one separate Central Government Department dealing with all questions pertaining to the coal industry? If so, do you consider also that a Department should be created under a Member of His Excellency the Viceroy's Executive Council to deal with all questions relating to minerals and mines, including coal?

Answer.—We agree with the proposal that there should be one separate Central Government dealing with all questions pertaining to the mines and collieries.

We are of opinion that a Department should be created under a Member of His Excellency the Viceroy's Executive Council to deal with all questions relating to minerals and mines.

Question 3.—A major portion of the coal industry in India is now controlled by Managing Agents most of whom have other industrial interests also. There are, besides, a large number of privately owned collieries; and lastly, consumer interests, such as the railways, iron and steel companies and cement works, own and operate collieries mainly to supply their own requirements of coal but sometimes also for the purposes of trade. Do you consider that the structure of the units of production in the coal industry outlined above is satisfactory? If not give your reasons.

Answer.—We consider that the structure of the units of production in the main for the Coal Industry is satisfactory with the following exception:—

In circumstances where certain units are too small or too awkwardly shaped to engage or justify systematic working or employment of the necessary technical staff should be amalgamated to permit economic and safe working.

Question 4.—The system of Managing Agents is a historical legacy in the development of the Indian coal industry. Has the system, in your opinion, outlived its usefulness and, if so, what changes would you suggest?

Answer.—It is well known to all those who have been engaged in the development of coal industry in this country that the Managing Agency system has been conducive to the systematic development of the coal mines and have been the means of engaging the necessary technical staff to open up the coal seams on modern economic and safe lines.

Question 5.—Is the type of close alliance between units of coal production and consuming interests, whether through ownership (as for example in the case of iron and steel companies) or otherwise, a healthy factory from the point of view of prices and wages?

Answer.—The close alliance between units of coal production and consuming interests such as steel, cement, etc., is a feature common in all countries such as England, America, Germany, Australia and others. We do not consider this an unhealthy development provided there is a limit to their expansion and it should not be such that they would dictate the policy regarding the price, quality, etc., on the open market.

Question 6.—What has been the influence generally on the industry of the fact that Indian

Government Railways own and operate their own collieries ?

Answer.—We see no reason why Indian Government Railways should not own and operate their own Collieries providing the outputs are reasonably controlled, so as not to lower the price of outside coal to an uneconomic level.

OWNERSHIP AND MANAGEMENT

Question 7.—It has been suggested that private ownership of mineral rights in Permanently Settled areas and uncontrolled grant of leases for working these properties has led to the dissipation of coal resources and that in order to rectify the position Government should acquire those mineral rights and take power to revise, if necessary unilaterally, defective provisions in existing leases. Do you agree ? If so, what, in your opinion, are the principal disadvantages that have resulted from the private ownership of rights in coal ?

Answer.—No remarks.

Question 8.—Short of Government acquiring mineral rights, do you consider that administration by the State of coal-bearing properties, on behalf of the owners, is an adequate solution ?

Answer.—No remarks.

Question 9.—If mineral rights remain undisturbed, do you consider that Government should enact legislation authorising State control over the power to lease coal-bearing lands (including the terms under which minerals are to be worked) ?

Answer.—No remarks.

Question 10.—In the event of the State acquiring mineral rights in coal, do you consider that the national advantage lies in continuing private ownership in the working and disposal of coal, or could you advocate State ownership and operation throughout ? If, in our opinion, the system of private ownership should continue, do you think that the State should exercise effective control over production, and/or distribution and marketing ?

Answer.—No remarks.

FINANCE

Question 11.—It has been alleged that a large number of concerns are under-capitalised and are unable to obtain on reasonable terms finance for modernising their equipment and technique. Do you consider that this is true today, and if so, can you make any ameliorative suggestions.

Answer.—Any well managed concern should have no difficulty in getting capital today.

Question 12.—Are you aware of any cases of over-capitalisation in the industry such as is likely to have unfavourable repercussions on the stability of the industry ? If so, do you suggest that Government should take any steps to rectify the position ?

Answer.—No. Although Coal Companies to meet the Government's demands for coal during the last few years have been compelled to increase their productive capacity by paying inflated costs for plant, machinery, etc. This has been to a certain extent met by special concessions granted to the coal industry by Government which is opera-

tive only upto 31st March 1950. Owing to the efforts of the coal Companies to meet Government's demands during the war period for coal we think that the date should be extended.

PRODUCTION.

Question 13.—It is stated that one of the great handicaps of the Indian coal industry is the low output per head. What proportion of the cost of coal per ton at pithead do the wages and other perquisites of labour represent in this country ? It would be an advantage if details can be given for (a) 1936, (b) 1939 and (c) 1945. Can you state similarly the proportion of wages to cost of coal per ton at pithead in the U.K., the U.S.A., Germany, or other countries?

Answer.—The great handicap in the coal industry in India is the low output per man shift. The problem of effecting improvement should be squarely faced. It involves improvements at the coal face, and underground transport arrangements, training and other technical problems.

Question 14.—What suggestions can you make for improving the output of Indian coal-mining labour ?

Answer.—(a) Increased mechanisation.

(b) Compulsory education.

(c) Higher standard of living and diet.

(d) Creation of mining community so that they permanently stay at Colliery camp.

Question 15.—Do you consider that the system of coal-raising contractors tends to improve output ? Do you consider that this system has resulted in unsystematic mining methods ?

Answer.—No remarks.

Question 16.—It is estimated that over the next two years or so, there will be a discrepancy of approximately six million tons between the coal requirements of the country and the coal available for disposal. How do you suggest this deficit in production should be made up ?

Answer.—The following schemes may go to increase the outputs :—

(a) The development and enlarging of existing Collieries.

(b) Installation of new machinery and modernising the existing plant.

(c) Development of virgin areas or opening new coalfields.

(d) Sand stowing done on a much larger scale than what is at present.

(e) Increase in mining labour. Most of the Collieries are suffering from shortage of permanent labour.

(f) Increased Railway facilities to clear the coal in time and to supply empty wagons regularly.

DISTRIBUTION AND MARKETING

Question 17.—Do you consider that a Central Marketing Agency for coal formed either voluntarily by the trade or under Government aegis, desirable or feasible ? Or would you consider a system of price fixation allied to Government-Controlled distribution adequate. Or, again, would you prefer price control related to sales quotas for different

mines fixed by the State or privately by the trade in agreement? Do you envisage regional or zonal groupings under the marketing scheme you prefer? Please suggest the outlines of the scheme of your choice and indicate in it the role of (i) the State, (ii) the collieries, (iii) the managing agents or proprietors

Answer.—No remarks.

Question 18.—Apart from metallurgical coal, which presents special features, do you consider that there is a case for the complete regulation of the use of different coals for different purposes? If so, is such regulation possible immediately on the lines of war-time practice? If not, what are the conditions that must be fulfilled before any such regulation can be enforced? It has been stated, in this connection, that a complete analysis of all Indian coals is a condition precedent. Do you agree?

Answer.—No remarks.

Question 19.—If you are not in favour of the complete regulation of the use of coals, do you consider that regulation of use by certain consumers only, e.g., railways, is necessary?

Answer.—No remarks.

Question 20.—In the event of complete regulation of the use of coals, or if the grading of coal for internal consumption is introduced, or if again, a Central Marketing Agency is set up, whose should be the responsibility for ensuring that the correct coal has been despatched by a colliery?

Answer.—The responsibility for ensuring that the correct quality of coal, tendered for, has been despatched, should be primarily the duty of the Colliery itself.

Question 21.—Please say what you consider should be the various sizes of coal to meet the market's demands, giving the exact specifications in each case.

Answer.—The various sizes should be :—

- | | |
|-----------------|--|
| (a) Run of mine | All sizes mixed together. |
| (b) Steam | All Coal over 2" size. |
| (c) Slack | The product remaining after screening of steam coal. |
| (d) Rubble | Double screened coal $\frac{1}{2}$ " to $1\frac{1}{2}$ " |
| (e) Dust | $\frac{1}{2}$ " to 0. |

TRANSPORT

Question 22.—It has been suggested that from the point of view of overall rail transport economy the true economic range for the consumption of coal from each field should be determined and that thereafter distribution should be on a zonal basis. What are your views on this and, if you agree generally with the suggestion, can you suggest the details of a zonal system?

Answer.—Zonal system seems satisfactory with certain exceptions.

Question 23.—Please comment on the suggestion that there should be a pooling of rail freights so as to keep the price of coal at various centres at the same level.

Answer.—We are of opinion that the pooling of freights so as to keep the price of coal at various centres at the same level is not practicable or desirable. The geographical position of most

industries have been determined after the economics of its fuel and other requirements have been considered, and interference might very easily dislocate its present economics.

Question 24.—The view has been urged that the fixation of rail freights on a uniform basis for all qualities of coal is unsound. If you agree, can you suggest the principles of a revised freight rate policy?

Answer.—We accept the principle that there should be a variation in freight between different grades of coal as the value of any coal is the heat units that can be obtained from it at an economic price. If effect is given to the suggestion it should encourage the usage of younger and poorer coals. The principle of a revised freight on poor grade coals can be based on its calorific value as compared to a better grade coal from neighbouring coal fields.

Question 25.—Considering that the Railways obtain a large proportion of their gross revenue from coal traffic, should the freight rates for coal be influenced by —

- (i) the overall operating costs,
- (ii) costs of moving the coal on the railways, or
- (iii) the principle of "what the traffic can bear"?

It will be helpful if the Railway Administrations would supply relative statistics regarding costs of moving coal and costs of moving all goods.

Answer.—No remarks.

Question 26.—Do you agree with the suggestion that reduced freight rates should be charged by the Railways for trainloads of coal consigned to one consumer?

Answer.—We see no objection to trainloads of coal provided it is to the advantage of Railways and consumers if more economic transport results from doing so.

Question 27.—Have you anything to say as regards alleged difficulties that arise from route restrictions on the movement of coal?

Answer.—No remarks

Question 28.—It has been suggested that there is a common pool of wagons for the East Indian Railway and the Bengal Nagpur Railway, operated by a central body, the more efficient distribution of available wagons would be facilitated. What is your comment on this?

Answer.—No remarks.

PRICE AND PROFITS

Question 29.—As to the price of coal, do you consider that a return to free competition is desirable? If not, do you consider that the trade can work out, on a voluntary basis, a system of fixed prices for different grades of coal which while being fair to the consumer, will be sufficiently flexible to meet the inter-play of supply and demand and will maintain the stability of the trade? What is your comment on the suggestion that Government should have the power to fix prices? In framing your replies, you are requested to take due note of the coal requirements of the country, industry by industry, in the period of post-war industrialisation and reconstruction.

Answer.—We do not think that a return to free competition in the coal trade at the present time is desirable. Cut-throat competition in the past was the cause of low wages to the miners, miserable living conditions and lack of technical efficiency in many of the collieries. We cannot deal with this very important question in detail, but there is one point we would like to make and that is coal mining is not an attractive job, as it involves working underground away from the sun and fresh air and wages for underground workers should at least be as high as in other industries demanding an equal degree of effort and the miner is entitled to this. A return to competition as it easily might would tend to decrease his earnings and present day amenities it is certainly not desirable to revert to these conditions.

Question 30.—In view of the fact that Indian Government Railways and Iron and Steel Companies consume over one half of India's total output, do you consider that control over the prices of coal supplies to these consumers only would provide a sufficient impetus for achieving stable conditions in the industry ?

Answer.—No remarks.

Question 31.—If Government intervention is necessary in price-fixation, can you suggest the details of the machinery and procedure that should be adopted ?

Answer.—No remarks.

Question 32.—What, in your opinion, should be the difference in the price f.o.r. colliery between the different grades of coal as classified under the present Colliery Control Order ?

Answer.—No remarks.

Question 33.—What, in your opinion, would be a reasonable basis for price-fixation ? In particular, what element of profit should be included in the price ? Can you say, for the confidential information of the Committee, what element of profit entered into price in (a) 1936, (b) 1939 and (c) 1945 ?

Answer.—No remarks.

Question 34.—An element of price to the consumer is frequently middleman's commission. It is suggested that this commission is sometimes excessive. What are your views on this ?

Answer.—No remarks.

TAXATION.

Question 35.—If you consider that the coal industry in India is subjected to unduly heavy and multiple cesses and taxation, can you amplify your view by facts and figures and by comparison with the position in other industries and in other countries ? What effects has this level of taxation had on the coal mining industry ? In what respects do you consider relief necessary ?

Answer.—We consider that the coal industry suffers from unduly heavy taxation. The cases in point are more liberal depreciation and amortisation. A very necessary consideration is the question of amortisation on the capital expenditure in the machinery and equipment of a

mine or Colliery. A sum per ton necessary for amortising should be permitted to be accumulated free of taxation.

NATIONAL AND INTERNATIONAL COMMERCIAL POLICIES

Question 36.—Do you consider any special provisions necessary in international treaties and trade agreements to safeguard the natural export markets for Indian coal ? What do you consider these markets to be ?

Answer.—No remarks.

Question.—What do you consider has been the effect on the industry generally of the implementing by India of international conventions in respect of colliery labour ?

Answer.—No remarks.

CONSERVATION OF HIGH GRADE METALLURGICAL COAL

Question 38.—What is your definition of metallurgical coal and what known deposits thereof exist in this country ?

Answer.—Deals mainly with Metallurgical Coal which do not call for any reply from us.

Question 39.—What kinds of coal were you using in 1938 and what kinds are you using now ? What is the reason for the change, if any ?

Answer.—There were no restrictions in 1938 and therefore, we were getting any kind of coal that was required. Today the position is that metallurgical coal is not made available.

Question 40.—What has been your consumption of metallurgical coal in the years 1936 to 1945 ? Please give details of the quantities used for different purposes, both coking and non-coking.

Answer.—No remarks.

Question 41.—How much of the coal shown in (40) above has been drawn from your own collieries ? What has been the output of these collieries and how has the excess, if any, over your requirements been utilised ?

Answer.—No remarks.

Question 42.—What are likely to be your future annual requirements of metallurgical coal, working to full capacity, over the next five years ?

Answer.—No remarks.

Question 43.—To what extent can the requirements stated in (42) above be reduced by the fullest possible resort to (a) blending and (b) washing ? What progress has been made in this country in these two matters and has any saving of metallurgical coal been achieved in actual working ?

Answer.—No remarks.

Question 44.—Do you consider that iron and steel works are utilising coal in the most economical manner possible ? If not, can you suggest any improvements or comment on the proposal to obtain the results of fuel technological research abroad and initiate a study of the coal consumption of these works ?

Answer.—No remarks.

Question 45.—Having regard to the known deposits of metallurgical coal, do you consider that a case exists now for restricting the use of metallurgical coal to iron and steel works and other metallurgical works only? Please give your reasons.

Answer.—No remarks.

Question 46.—On the assumption that the steel industry expands to an output of, say, ten million tons in the next fifteen years, would you consider that a case exists for restricting now the use of metallurgical coal?

Answer.—No remarks.

Question 47.—If restriction is necessary, how do you suggest it should be enforced?

Answer.—No remarks.

Question 48.—If restriction on the use of metallurgical coal reduces the output of such coal, how would you deal with the problem of the collieries which may have to close down in consequence or reduce their output?

Answer.—No remarks.

Question 49.—Against the background of your previous replies do you consider that it is desirable for the State to own or to own and operate all metallurgical coal? What advantages, if any, can these have over the statutory restriction of the mining and use of such coal?

Answer.—No remarks.

IV

CONSERVATION OF HIGH GRADE STEAM COAL

Question 50.—What is your definition of high grade steam coal and what known deposits thereof exist in this country?

Answer.—No remarks.

Question 51.—Do you consider that there has been a wasteful use of high grade steam coal in this country? If so, in your opinion, are the uses to which such coal should be put?

Answer.—No remarks.

Question 52.—Having regard to the known deposits of high grade steam coal, do you consider that a case exists for restricting its use? If so, what form of restriction do you suggest?

Answer.—No remarks.

Question 53.—If, as regards metallurgical coal, you have expressed an opinion in favour of State ownership or State ownership and operation, do you consider that a strong enough case exists for adopting a similar policy in respect of high grade steam coal also? Please give reasons.

Answer.—No remarks.

Question 54.—What is the present percentage of extraction of coal in India and has there been any improvement in this matter in recent years? If so, what are the reasons?

Answer.—It is difficult to say what is the present percentage of extraction of coal in India.

There have been improvements due to following reasons :—

- (1) Sand stowing.
- (2) Mines Legislation which lays down minimum size of Pillars and maximum size of Galleries.
- (3) Panel system of working.
- (4) Technical staff is showing improvements in their methods of extraction of coal.

Question 55.—Do you consider that the existing Mining Regulations regarding first working, section working and depillaring are adequate (coupled with stowing when necessary) for securing the maximum extraction of coal? If not, what improvements would you suggest?

Answer.—We consider that the regulations are satisfactory for the purpose, but more of Sand stowing should be practised specially in thick seams prior to depillaring.

Question 56.—The Coal Mining Committee, 1937 recommended that rotation working should be controlled. Do you agree, and if so, how do you suggest the control should be exercised?

Answer.—Rotation working is certainly desirable and it can be controlled by gradual introduction of Sand Stowing as far as practicable.

Question 57.—At present stowing for safety can be enforced under the Coal Mines (Safety) Stowing Act. Do you consider that the principle of enforced stowing should be extended to include stowing for conservation purposes as well as for safety? If so, to what kinds of coal should it be applied? Should such stowing be assisted and if so, to what extent and in what manner?

Answer.—All Coals belonging to Grade I and above should be worked in such a way that maximum extraction is possible otherwise sand stowing must be enforced.

Enforced Sand Stowing should be left in the jurisdiction of the Chief Inspector of Mines and the Government should assist if this is made compulsory by the Chief Inspector of Mines.

Stowing must be compulsory wherever safety is to be ensured in respect of all coal mines.

Sand stowing should apply to Coal Seams of 5 ft. and above.

Sand stowing should be state aided at 75% cost of the total cost.

Supply of sand should be undertaken by the Sand Stowing Board. The Board should have sufficient income through Taxation to give facilities to all Coal Companies who need sand stowing either obligatory or compulsory.

Question 58.—Should Government undertake the work of delivering sand for stowing? Is it necessary that Government should acquire sand rights? In both cases, please give your reasons if your answers are in the affirmative. To what extent will either of these propositions interfere with existing arrangements?

Answer.—No remarks.

Question 59.—Should lessors be made to share in the cost of stowing? If so, in what manner?

Answer.—No remarks.

Question 60.—There is a considerable amount of coal locked up under the Grand Trunk Road and Railway lines, sidings, etc., which unless extracted now, is likely to be lost irretrievably. Please state if you have experienced any difficulty in obtaining permission to extract such coal and what the outcome of your efforts has been.

Answer.—No remarks

Question 61.—It is claimed that economy and efficiency in coal consumption are increased by the use of (a) pulverised coal, and (b) collidal fuel. Have there been any developments in these matters in India? If not, do you consider that any action should be taken?

Answer.—No remarks.

Question 62.—It may be more economical in some cases to burn low grade coal to produce power at or near the pit than to transport such coal. This suggests the desirability of installing more power stations in the coalfield areas and transmitting power to consuming centres. In the Bengal/Bihar area, this would enable the (a) electrification of the rail track, (b) supply of electricity to Calcutta amongst other things, and would avoid considerable movement of coal that would otherwise be necessary. What are your views on this generally and can you provide any useful data?

Answer.—No remarks.

Question 63.—Have you any comments on the present methods of producing soft coke adopted in this country and the recovery of bye-products?

Answer.—No remarks.

Question 64.—Do you think there is a special case for developing the coal-tar distillation industry in India, especially in view of the complete lack of natural gases and insufficiency of petroleum within the country?

Answer.—No remarks.

VI

MINING LEASES AND FRAGMENTATION

Question 65.—To what extent have new leases (including sub-leases) been granted from 1936 to 1945? Can details of the areas and the nature of the terms be disclosed.

Answer.—No remarks.

Question 66.—Many leases contain no provision for "in stroke" and "out stroke" working. What has been the effect of such omission on the working of coal seams?

Answer.—No remarks.

Question 67.—Where Provincial Governments own the minerals, prospecting licences and leases are granted in accordance with the Mining Rules? Have you any comments to make on the terms of these Rules with special reference to the period of the leases

Answer.—No remarks.

Question 68.—Do you think that, under existing conditions, Government should take power to fix standard or maximum rates of royalty and regulate or abolish the levy of salami?

Answer.—No remarks.

Question 69.—How would you define an uneconomic colliery holding? What is the extent of such holding at present? Do they generally comprise direct leases taken by the present owners? What factors, if any, have been responsible for the fragmentation of holdings?

Answer.—An uneconomic Colliery holding is a Colliery which is too small to expand and thus cannot be worked in an efficient manner.

Areas under 50 to 70 acres could not be called an economic Colliery holding and much more so if they are dislocated by Geological disturbances.

We are unable to tell whether they generally comprise direct leases taken by the present owners. The factors responsible for the fragmentation of holdings are :—

1. *Salami.*—A small owner is unable to pay a large Salami for larger areas

2. A small Colliery owner is unable to go in for a large Colliery Plant, such as pumping and Haulage Equipment and consequently selects plots in which coal is outcropping.

Question 70.—Do you consider that the existence of uneconomic Colliery holding is undesirable in the national interest? If so, why?

Answer.—No remarks.

Question 71.—Do you consider that legislation should be enacted for ensuring that areas leased in future are of proper economic size? Do you think that the existing problem of fragmentation of colliery holdings can be solved by any one or more of the following methods, viz :

(i) State ownership of mineral rights and subsequent amalgamation of leases where possible or desirable ;

(ii) the appointment of a special officer to negotiate between landlords and tenants with a view to amalgamation of leases where suitable ;

(iii) voluntary schemes of amalgamation ;

(iv) legislation to enforce amalgamation ?

Answer.—No remarks.

VII

OPENING OF NEW COAL FIELDS

Question 72.—Are you aware of any untapped or only very partially exploited deposits of coal in this country? If so, can you say anything about the extent and quality of those deposits and the action contemplated to develop them?

Answer.—No remarks.

ADMINISTRATIVE MEASURES

Question 73.—A number of cesses, Central and Provincial, are now payable in respect of coal. Assuming that the levies made are necessary for

the various objects in view, have you any ideas about an alternative and more suitable, administrative arrangement for their collection and utilisation?

Answer.—No remarks.

Question 74.—Do you consider that a single body, exercising the functions of the present soft Coke Cess Committee, the Coal Mines Stowing Board and the Coal Grading Board, in addition to any further duties (e.g., as regards conservation) that may be laid on it, has advantages over the present set-up? If so, what, in your opinion, should be its composition?

Answer.—No remarks.

Question 75.—Do you consider that it will be an advantage to unify the multiplicity of bodies dealing with utility and health services in the coalfields?

Answer.—No remarks.

122. WRITTEN EVIDENCE M/S THE BARAREE COKE CO., LTD.

QUESTIONNAIRE I

Q. 37.—What progress has been made in the recovery of Benzol as bye-product in the manufacture of Metallurgical Coke? Is any special encouragement necessary to facilitate progress in this matter?

Benzol has been manufactured in India by the Bararee Coke Co. Ltd. for nearly 25 years. It has also been manufactured at the Giridih Coke Plant of the E. I. Rly. At the outbreak of World War II Government purchased and erected suitable Plants at Tatas' and Indian Iron & Steel Co. Works at Hirapur and these are still in existence.

The special encouragement needed to facilitate progress in the manufacture of Benzol or any other hydrocarbon derived from Coal is that neither Central Excise nor Provincial Excise or Sales Tax should be levied thereon.

This would bring it into line with the practice in Great Britain where no Excise Duty has ever been charged on Benzol or Oil from Coal.

In 1938 the Committee of Imperial Defence, Sub-Committee on Oil from Coal (Falmouth Committee) recommended a guaranteed preference on home produced spirit for 12 years from 1938 of not less than 8d per gallon (the amount of duty on imported spirit then in force).

This was for the purpose of encouraging as much as possible the production of motor fuels from coal and in our opinion the same practice should be followed in India.

During the last War Toluene of requisite purity for T.N.T. has been manufactured at the Govt. Plants at Tatas and Hirapur and by the Bararee Coke Co., Ltd.

123. WRITTEN EVIDENCE OF M/S. JARDINE SKINNER AND CO., CALCUTTA.

The suggestion put forward by the Indian Mining Association of the method to regulate the Railway Board and market prices would not, in the event of conservation of Coking

Coals, provide a basis for price fixation of this class of coal, and in our opinion, therefore it would be necessary for prices of these coals to be fixed once a year by a Committee representing Government, Producers and Consumers.

We have suggested Government being represented on the Committee; if, however, any such Committee is to be entrusted with wider powers, we consider that its membership should consist of non-officials (producers and consumers). We would not object to Government representatives attending in a non-voting capacity—there would be times when their presence and help would be most useful. We do feel, however, that the Trade will have to work out its own problems with the help of consumers.

We do not consider a Central Marketing Board necessary or desirable.

124. WRITTEN EVIDENCE OF THE HIMALAY COAL AND MINERAL INDUSTRIES, CALCUTTA.

QUESTIONNAIRE I

We submit hereunder our replies to your above questionnaire. We have recently commenced opening out a new field. We are interested in only a few of the questions asked and we have restricted our replies to the same.

II. GRADING AND EXPORT

8. In our opinion the grading of coal for the internal market is desirable but it should remain discretionary.

IV. RAILWAY FACILITIES

9. We are opening out a coalfield situated at a distance of about 4 miles from Bagrakote railway station on the metre gauge section of B.A. Railway. We have applied for siding facilities. If these are granted, we would be able to supply substantial quantities of coal to meet the requirements of the large area from Darjeeling—K Kalimpong in the north to Chittagong in the south and from Amingaon in the east to Lucknow Cawnpore in the west. Provision of siding facilities for this coalfield should be one of the measures for increasing the coal output of India.

VI. RAILWAY COAL REQUIREMENTS

26. We suppose the questions under this heading are to be answered by the Railways. We venture to express the hope that this policy of Railways regarding the procurement of their coal requirements in future will enable them to use our briquetted coal. We expect to supply briquetted coal of great heating power at reasonable rates within about a couple of years.

VIII. MISCELLANEOUS

27. The coal that we are working is much crushed. Although Mr. B. Kubanek, the Chief Combustion Engineer to the Government of India, is of opinion that our coal would be used in ordinary boilers by making alterations in the grating arrangements, for many purposes such as for use in railway locomotive boilers

the coal has to be briquetted. Briquetting therefore is a necessity for us. We have every hope of doing this at a very reasonable cost.

36. In our opinion the Fuel Research Institute should immediately take up the following problems :—

(1) Bye-product recovery low temperature carbonisation of coal.

(2) Briquetting of dust coal without a binder.

(3) Using coal in pulverised form.

(4) Using pulverised coal with oil as colloidal fuel.

40. Whenever possible planned settlement of mining labour with their families should be encouraged. Each family should have a strip of land for cultivation. Water supply, medical help should be provided.

QUESTIONNAIRE II

We beg to submit hereunder our replies to your above Questionnaire. We have restricted our replies to the questions in which we are interested.

1. We do consider that the Central Government should now enact legislation to vest in itself the power to regulate mines and minerals and mineral development and to control the production and distribution of coal. We would not consider it satisfactory if the Central Government took powers in respect of certain matters only and left the rest for provincial control.

2. We also do consider that a Department should be created under a Member of His Excellency the Viceroy's Executive Council to deal with all questions relating to minerals and mines, including coal.

7. Coal is essential for most industries. In national interest the Government should acquire all mineral rights.

10. In our opinion, at the present stage of development of the country, national advantage lies in continuing private ownership in working and disposal of coal.

16. We suggest that one of the ways of increasing the total coal production of the country would be to afford communication and transport facilities for the important source of coal in the Darjeeling District that we are opening out.

22. We generally agree with the suggestion of the zonal basis of distribution. In our case we submit that the following points should be taken into consideration in fixing the zone of supply, namely, the range over which the coal could be transported without transshipment, the purposes for which the coal is particularly suitable—our coal being naturally crushed is particularly suitable for brick burning, for use as pulverised fuel, etc., and the railway

freight. To illustrate our point, we submit herewith a *map showing the area over which our coal could be supplied.

23. Considering the fact that India is a country of vast distance, this seems hardly practicable.

24. We agree that a uniform freight rate for all quantities of coal is unsound but we are not in a position to suggest the principle of a revised freight rate.

29. In our opinion the suggestion that the Government should have power to fix prices appears to be sound, at least for some time to come.

35. We can only generally say that the present taxation is rather heavy and it has the effect of raising the cost of coal to the consumer.

48. In such cases the Government should buy the properties at fair valuation.

61. All the cement factories in India, the Indian Copper Corporation and two or three electric supply companies use pulverised coal. We are not aware of colloidal fuel being used in this country. We should very much like to see the Government take up experiments (perhaps at the Fuel Research Institute) with a view to use pulverised fuel in locomotive boilers, in ordinary boilers such as are used in the tea gardens, and colloidal fuel in the tea gardens where they are using diesel oil at present. Information about the these experiments should be made very widely known. Our coal being naturally adoptable for use as pulverised fuel and colloidal fuel, we are very much interested in these problems.

63. The present methods of producing soft coke are extremely wasteful of the bye-products. In this matter too the Government should have some experiments carried out and make the results known to the manufacturers of soft coke.

64. The products of coal distillation are alike varied and numerous. In a vast country like India, the demands for these products are bound to be considerable. Therefore, there is clearly a case for developing a coal distillation industry in this country. We do not however agree with the view that there is a complete lack of natural gas in this country. We are inclined to think that natural gas might be found in many parts of Bengal.

67. Under the Mining Rules a lease for coal could be granted for 30 years with option to the lessee for a renewal of the lease for another period of 30 years. We suggest that the lessee should have a right to yet another period of 30 years. In Zamindari land the leases are often enough for 99 years and sometimes for 999 years.

68. The Government should fix a standard or maximum rate of royalty and abolish the levy of salami.

72. There are several untapped coal deposits information about which is available in the publications of the Geological Survey of India. We ourselves are now opening out such a coalfield

a report about which appeared in the Records of the Geological Survey of India, Vol. 23, part 4, pages 237 to 258.

125 WRITTEN EVIDENCE OF MR. B. CHATTORAJ
OWNER, NEW ANGAPATHRA COLLIERY, P. O. KATRA
ASGARH

QUESTIONNAIRE

Before replying to the specific questions on different aspects of the problem I may be permitted to say that the time chosen to appoint a committee to investigate into the key problem of the country is inopportune as there is every possibility of the establishment of national government at the centre in near future. I am of the opinion that the problem can and should be tackled only by a national government in the interest of the general public. I, therefore, beg to suggest that the recommendations of this committee should be examined and given effect to only by the national government when established.

My replies to the questions put by you on different heads are given below subject to my above observations.

I

General.

1. Conditions for control by the state over methods of extraction etc. still exist in a stricter measure. Even to-day the measures and the media of their enforcement are far from satisfactory. Planned and stringent methods should be adopted to check reckless wastage of coal deposits in mines. Recommendations of the 1937 Committee should have been given effect to in full. Powers of the Mines Department are inadequate to deal with the problems handled by the 1937 committee.

II

Grading & Exports.

2. Yes. Yes.

7. Yes.

8. Yes. Yes. In order to help conservation of higher grades of coal the use of coal should be rationalised and lower grades of coal should be graded in order to recommend a particular grade of this coal for a particular use.

IV

Railway Facilities.

13. No. Cannot suggest any remedy for want of data.

14. The present method of allotment is only helping quick exhausting of the higher grades of coal by allowing the latter first priority of movement so that the capitalist owners who are generally antinational are taking recourse to methods of extraction which may yield greater output in utter disregard of the safety of the mine or the minerals which lie in more costly regions. Besides, this selected grade

coal is being wastefully used where interior grade of coal can well serve the purpose. This has also resulted in the neglect of the deposits of the inferior grades of coal. The present method of allotment has the special touch of discriminating between colliery and colliery and also between grade and grade and has bowed to the wishes of the big capitalists. Neither the 1940 method was satisfactory. Allotment should be made pro-rate on basis.

39. Arrangements for the grant of siding accommodation are not only unsatisfactory but arbitrary. Siding accommodation is granted on the prospects of visible despatched from actual developments effected in the mine and not on potentialities. Discrimination is also made against inferior grades of coal.

V

Raising Costs.

Years.	STEAM.				SOFT		COKE	
	Pit head.		Loaded into Wagon		Pit head.		Loaded into Wagon.	
	Rs.	as.	Rs.	as.	Rs.	as.	Rs.	as.
1935	1	2	2	2	2	12	4	4
1939	1	2	2	0	2	8	4	0
1946	3	8	7	8	7	8	12	8

VIII

Miscellaneous.

40. Labour should not be treated as a class born to lead an indecent and unclean life. In the matter of sanitation, education and other amenities of life they should be placed on equal footing with the supervisory staff. The children of the labourers should be so trained and educated that they may gradually absorb all the supervisory posts. Guarantee of decent living condition is the condition precedent for any stability in work. This can be done by State control alone and not by capitalist control who have only lip-deep sympathy for the labourers. While the owners want to live perfectly immune from starvation and disease they think of the labourers only in terms of bare necessities of the body not soul. I suggest that the quarters of the supervisory staff should be surrounded by the dwelling houses of the labourers. The Mines Boards of Healths as at present constituted are antagonistic to the interest of the labourers and serve only as the agents of the capitalists.

I am prepared to appear before the Committee and explain my views. I have been associated with colliery interests for the last 25 years and was the Honorary Secretary of the Indian Collieries Union during 1945.

QUESTIONNAIRE II

1. Constitutional.—A national government only can decide the proper course to be taken.

2. All mines and mineral including coal should be dealt by a single department of the Central Government.

II

Economics of the Coal Industry.

3. All mines and minerals should be acquired and worked by the State. Until that is done present Units of Production can usefully serve the purpose under proper Control and Guidance of the Central Government.

5. The present type of alliance between units of coal production and consuming interests is not at all healthy. Every one is out to cheat everyone else.

Ownership and Management.

7. Private ownership has already rendered a large part of the coal deposits irrecoverable and its continuance for any length of time specially when prices are high will cause a large part of the coal deposits to be lost for ever. State ownership and planned working are the only remedies. The principal disadvantages of private ownership are—

(a) Owners want a larger output and a larger outturn at minimum cost even at the sacrifice of large deposits of coal which lie in costly regions.

(b) Only minimum amenities of life are provided for the labourers.

(c) Neglect of bye-products. In the coming days of unemployment of educated young men State ownership alone can find use-full employment for them in the various branches of the trade.

(d) The money going to the pockets of the capitalist owners is retrading industrialisation of the country.

8. No.9. Does not serve any purpose.

10. State ownership and operation throughout.

Finance.

11. Yes. Amalgamation of the small holdings under a limited Company, until they are nationalised.

Production.

14. Mechanisation.

15. Does not tend to increase output and want of State Control in a rigid measure and the greed of the capitalist owners have resulted in unsystematic mining methods.

16. Fixed policy of government that all coal produced by all collieries irrespective of grade will be given equal facility for despatch, and speedy mechanisation where called for.

Distribution & Marketing.

17. (i) the State can constitute a marketing Board at the Centre with representatives of collieries and consumers to ascertain and distribute the particular grades of coal required by each class of consumers. (v) Merchant and brokers must on no account be allowed to play any major role in the marketing of coal. (v) Consumers of coal should be educated by propaganda and information about the utility of each grade of coal so that they may make a proper choice of their requirements. Now-a-days a consumer asks for and gets selected grade coal for brick burning purposes

thanks to the middlemen, and the present system of distribution.

18. Yes. Complete regulation of the use of different coals for different purposes. Such regulation is not possible on the line of war-time practice.

20. Central Marketing Agency should be responsible.

Transport.

22. Distribution should be on a Zonal basis.

Price & Profits.

29. I have suggested a Central Marketing Agency composed of different interests under the Central Government. This Agency should be empowered to deal with the subject of fixing prices.

30. No. 31. Replied in para. 29.

32. & 33. Difference in price does neither increase nor decrease the output in their narrow margin. Besides, difference should not be from grade to grade but from colliery to colliery taking into account the actual cost per ton raised by each individual colliery as there is a great divergence of cost in the production of coal from colliery to colliery. One rupee per ton clear of all taxes royalties and cesses.

34. The commission is not only excessive but arbitrary. The middlemen are not satisfied with that even they try to get more both from the consumer and the colliery.

IV

Conservation of High Grade Steam Coal

51. There has been a wasteful use of high grade steam coal. This coal should be used only for special purposes.

52. A case exists for restricting its use. A survey should be made of all the deposits of coal and workings should be regularise to localise its output only at particular places to ensure the safety of the remaining deposits. A correct estimate of the annual needs of this coal should be made.

53. High grade steam coal must go under state ownership. The deposits of metallurgical coal are small the high grade coal should therefore be conserved to replace it.

VI

Mining Leases and Fragmentation.

77. (1) State ownership of mineral rights and subsequent amalgamation of leases. Owners should be compensated as decided by a National Government.

I have been unable to reply to many questions for want of data though I feel very strongly on many of them but I do not want to mislead the committee by furnishing incorrect information.

126 WRITTEN EVIDENCE OF MESSRS TALOHER
COALFIELDS LTD.

QUESTIONNAIRE I

PART I

1. I consider that the conditions which impressed the two Committees to recommend control by the State over methods of extraction first working, depillaring, rotation and isolation of working dimensions and position of barriers, measures to extinguish or circumscribe existing fires in closed down collieries which are dangerous to life or property treatment of abandoned mines etc., do not prevail any longer.

The action taken by Government by increasing the powers of the mines Department and by establishing a Coal Mines Stowing Board have proved satisfactory and adequate. I do not consider that greater progress towards the amelioration of the conditions which impressed the two Committees would have been achieved by the introduction of a statutory Authority on the lines suggested by the 1937 Committee.

Grading and Exports

2. I consider that in view of the vast industrial developments in India as planned the emphasis laid on the coal export trade by the Indian Coal Committee 1925, does not retain so much validity now as twenty years ago.

3. By grading only desired quality of coal was shipped to foreign markets.

4.

5.

6.

7. Yes, I agree. The regrading should be confined to seams as a whole.

8. I do not think the grading of coal for the internal market desirable. It should remain discretionary.

9.

10.

11.

12.

Railway facilities

13. No, there are not enough Railway facilities wagon shortage is the principal handicap. Increased number of wagons needed.

14. 10-hour system of supplying wagons to collieries—Reasons for not giving effect to above. It involves complication in traffic system larger number of locomotives needed, loss of working time in loading wagons as wagon loading is always suspended for a considerable period when Locomotive engine enters the siding. This reacts on production resulting in loss of output to collieries fitted with screening plants. I do not think any change from the existing position is necessary.

15.

16. Collieries working selected A, selected B and grade I coal with a moderate amount of 12 to 15000 tons a month generally provided with weigh-bridge which gives an opportunity to colliery to adjust any overloading or underloading.

17.

18.

19. Yes, there are complaints. In my opinion the responsibility of a colliery in regard to the overloading and underloading of coal wagons should cease at the weighbridge whether private or Railway on weightment of wagons.

20. Mechanical loading appliances

Collieries working selected A, Selected B and grade I coal and supplying coal to Iron & Steel works and Railways are mostly fitted with loading appliances. 600 tons to 1000 tons a day on an average more than 3000 tons a day in one or two special cases. Supply of wagons should be cent per cent open type, to cope with the above capacity. Number of open wagons to be increased.

21.

22. I do not think it is desirable or possible.

Raising Cost.

24. All coal cutting is done by mechanical coal cutters at this colliery. Effect of mechanical coal cutters on raising costs—raising costs considerably increased on account of upkeep of the coal cutters as against manual coal cutting. It has not been possible to use such coal cutters to their full capacity on account of unfavourable mining conditions such as faults, small hitches, very weak roof. General development in favour of mechanisation is definitely desirable and possible in old and new fields in this country.

25. Rails are always laid up to the working face. It increases production per head, more earnings for the miners and satisfied miners.

Railway coal requirements.

26. Policy of the railways is to take coal containing ash up to 24%.

27. About 9 to 10 million tons a year. About 40% of Railways requirements consisting of Selected A, B and Grade I is drawn from their own collieries.

28. The present standard locomotives designed to use up to grade II coal (containing up to 24% ash). I am not fully acquainted with the details of modifications or adaptations made to locomotives but I believe there have been some modifications as locomotives used III B grade coal also during the last few years.

29. General experience gained regarding adapted locomotives—locomotives not yet adapted enough to use grade III B coal satisfactorily.

30. Policy being followed in ordinary new locomotives—to use grade III B coal satisfactorily.

Stowing

31. The operations of the Coal Mines Stowing Board are still in infant stages and are on the threshold of development leading to satisfactory results.

Obstacles with regard to voluntary stowing—Financial. If financial difficulties are removed, voluntary stowing will definitely increase.

32. This colliery is only preparing for stowing.

Miscellaneous

33.

34. Biquetting of coal—This is in extensive use in Great Britain and I do not see why it should not be so in India.

35. Washing of coal—Completely in experimental stages still. Iron & Steel Industries are in dire need of good coking coal less ash and less volatile matter are essential features for coke making. If washing of our Indian coal is successful this will reduce the ash percentage and so it may be a step contributing to successful coke making provided volatile matter is not too high.

36.

37.

38. There is room for improvement in rescue arrangements.

39. Educational Facilities—Only a few large collieries provide educational facilities to the children of the miners and other classes of workers, through L.P. Schools and only in a few instances through U. P. Schools as well. There are two L.P. Schools, one for boys and one for girls, at Villiers Talcher Colliery.

40. A settled and contented labour force.—Arrangements should be made for the grant of cultivating land to the miners on or about the colliery. This can be done by acquiring surface right of land suitable for agricultural purposes. In addition to this a decent living wage to the miners is necessary and this can only be done by increasing the price of coal to enable the coal owners to pay increased wages to the miners.

To counter-effect absenteeism that may follow increased wages to miners the standard of living of the miners should be increased. Provision of good quarters with latrines, kitchens, compound walls should be made for the miners. A small vegetable garden should be attached to his quarters. Miners belonging to agricultural class are very fond of it.

QUESTIONNAIRE II

PART II

CONSTITUTIONAL

1. I consider that the division of responsibility between the Centre and the Provinces that will arise on the lapse of emergency powers is not satisfactory. The Central Government should now enact legislation to vest in itself the power to regulate mines and mineral development and to control the production and distribution of coal.

2. There should be one separate Central Government Department dealing with all questions pertaining to the Coal Industry. A department should be created under a member of His Excellency the Viceroy's Executive Council to deal with all questions relating to minerals and mines including coal.

Structural organisation of the Industry

4. The system of Managing Agents has not outlived its usefulness.

10. The system of private ownership should continue and the State should exercise effective control over production and distribution and marketing.

14. To improve the output—The mining labour should be physically and mentally fit for his work. He should have nutritious food. He should abstain from drink. Complete elimination of grog-shop by gradual degree should be aimed at.

15. The system of coal-raising contractors tends to improve output but this system in the past has resulted in unsystematic mining methods.

16. A start should be made immediately to work inferior grade coal.

17. A Central Marketing Agency for coal under Government aegis is desirable. In other words it should be State controlled. Organisations manned by members of the Coal Trade and Industry under State control should be established and they should fix regional prices based on cost of production.

Distribution & Marketing

19. There is a case for the complete regulation of the use of different coal for different purposes. Such regulation is possible immediately on the lines of war-time practice.

20. It should be the responsibility of the Central Government to ensure that the correct coal has been despatched by a colliery.

21. To meet the markets demands—Loco coal should be 2" to 6" in size. Anything between $\frac{1}{2}$ " to 2" should be considered as slack coal. Anything up to $\frac{1}{2}$ " dust coal.

26. I agree that reduced freight rates should be charged by the Railways for train loads of coal consigned to one customer.

29. Government should have the power to fix prices, for price of coal a return to free competition is not desirable.

30. Control over the prices of coal supplies to Railway and Steel works is not enough. It should be extended to all other consumers.

31. Government intervention in price fixation. The present method of fixing the price on the basis of quality of coal as determined by ash content only is inadequate. Other factors such as calorific value, volatile matter, moisture—are also to be taken into consideration fully. Calorific value of the coal and volatile matter are to be given full weight in deciding the matter.

32. The difference between selected A grade and selected B grade should not be more than -/5/- only. The difference between selected B & No. 1 grade should not be more than -/5/- and so on.

33. Price fixation should be based on actual working cost making due allowance for depreciation of machineries and increased difficulties as the mine gets older and extended.

34. It is true that the middleman's commission is sometimes excessive. Perhaps there are far too many middlemen. A central marketing scheme solves the problem (under Government aegis).

35. Taxation.

I do not consider that Coal Industry in India is subject to unduly heavy and multiple cesses and taxation. Cesses and taxation there are in Great Britain. Effects of this level of taxation are safer mine, welfare of mining labour etc.

36. Special provisions necessary in international treaties and trade agreements—The foreign markets should accept inferior grade coal if they require it at all as India cannot export good quality coal.

37. Effect on the Industry.—Some of the good effects on the Industry are :—

Rate of accidents decreased, more persons desire to be employed underground in mines and quarries. Total production has gone up.

Conservation of High Grade Metallurgical Coal

38. Metallurgical coal—Low ash content 13 to 17% and low volatile matter about 1500 million tons exist in the country.

43. Blending and washing—Are still in experimental stages. Washing not yet found any practical application.

46. A very strong case exists for restricting the use of metallurgical coal.

47 & 48. Restriction of metallurgical coal being introduced—It would inevitably reduce the present output of collieries owning and working metallurgical coal. In order to compensate the loss that is likely to be incurred by such collieries, the Steel Industries should pay additional cess or taxes for all coal supplied to them as it is for their future benefit that such collieries are penalised. The restriction should be such as to make

the known deposits last for at least 200 years when the iron ore deposits are known to last longer than the above period at the present rate of consumption.

49. I do not think it will serve any useful purpose if the State owns or operates all metallurgical coal.

Conservation of High Grade Steam Coal

50. Selected A, selected B and Grade I coal ranging from 13 to 20% ash (of low volatile content), 11 to 18% ash of high volatile content, can be classified as high grade steam coal. Leaving aside 1500 million tons metallurgical coal, there are about 3500 million tons known deposits in this country.

51. Yes, I consider that there has been a wasteful use of high grade steam coal in this country. The use of high grade steam coal should be confined to locomotives only operating specially on main lines.

52. Yes, a case exists for restricting the use of high grade steam coal. The reasons are that demand for good quality steam coal would increase as coking coal which is now used for steam raising should be conserved solely for melting iron ore. Thus the life of the reserves of high grade steam coal would be shortened. Part of the increased demand would be met from the comparatively inferior qualities. High grade steam coal should therefore be used for locos only operating on main lines.

53. I do not consider that any case exists for State ownership or operation of high grade steam coal.

Conservation Generally

55. I consider that the existing mining regulations regarding first working, section working and depillaring are adequate (coupled with stowing when necessary) for securing the maximum extraction of coal.

57. I consider that the principle of enforced stowing should be extended to include stowing for conservation purposes as well as for safety. All metallurgical coal should be subjected to stowing. Such stowing should be assisted by way of cess on all despatches of coal.

58. The Government should undertake the work of delivering sand for stowing and for this purpose should acquire sand rights, inasmuch as for efficient mining in conjunction with sand stowing only the Government could exercise the best efforts and no other body. Unwilling colliery owners will be compelled to take sand for stowing purpose and the rights over the sand will be taken off from the existing owners.

59. Lessors should not be made to share in the cost of stowing.

61. To my knowledge no development worth mentioning has been made in the use of pulverised coal and colloidal fuel. Yes, action is necessary towards its development.

62. Burning low grade fuel to generate power at or near the pit is a commendable proposition.

64. There is a special case for developing the coal tar distillation Industry in India.

65. Quite a good number of outcrop areas containing grade II and grade III coal leased out specially from 1942 to 1945.

69. An uneconomic colliery holding. The following are instances—Small badly shaped areas. Anything below 200 bighas with an aggregate thickness of 10 ft. coal to be reckoned as small. They are generally not direct leases. The factors responsible for the fragmentation of holdings are—small capital coupled with uncertainty in future, coal Industry specially with regards to coal prices and requirements.

70. The existence of uneconomic colliery holdings is undesirable in the national interest, because it tends to unscientific and unsystematic mining.

71. Legislation should be enacted for ensuring that areas leased in future are of proper economic size. The existing problems of fragmentation of colliery holdings can be solved by legislation to enforce amalgamation.

72. Karanpura and Bokaro fields.

74. I do not consider that a single body has advantage over the present set up.

75. I do not consider that it will be an advantage to unify the multiplicity of bodies dealing with utility and health services in the coalfields.

45. A case definitely exists for restricting the use of metallurgical coal to Iron and Steel works and other metallurgical works only. Reasons:—At the present rate of consumption of metallurgical coal for purposes other than metallurgical there will be no metallurgical coal left after 45 to 50 years if compulsory sand stowing is not introduced immediately in collieries owning and working metallurgical coal. If sand stowing is introduced it may last about 75 years, so use of metallurgical coal must be restricted to metallurgical purposes only.

127. WRITTEN EVIDENCE OF S.E. BARABONI KHAS COLLIERY, CHARANPUR.

QUESTIONNAIRE II

I

CONSTITUTIONAL

1. I do not consider that the division of responsibility between the centre and the Provinces that will arise on the lapse of emergency power would be satisfactory.

The Central Government should now enact legislation to vest in itself the power to regulate mines and mineral development and to control the production and distribution of coal. The alternative scheme of the Central and Provincial Government sharing the powers would not prove satisfactory for many reasons.

2. I support the idea that one separate Central Government Department should deal with all questions pertaining to the coal industry.

I consider that the coal industry is of vital importance to this country's commercial expansion and existence and that it is essential that all questions relating to it should be dealt with by a department under a member of the Viceroy's Executive Council.

II

Structural Organisation of the Industry

3. I do not consider the structure of the Units of production in the coal industry outlined in question as at all satisfactory. Because these systems are all concerned with obtaining coal at the lowest cost, in most cases irrespective of loss and certainly regardless of the country's standpoint of this National Asset.

4. The system of Managing Agents has considerably outlined its usefulness. All coal production units should be State-owned.

5. The close alliance between units of coal production and consuming interests is an unhealthy factor in that it tends to force down prices and wages below the economic standard.

6. In good times the Railway Collieries seem to get preferential distribution of wagons. In slump periods the Railways take advantage of the lower market prices.

Ownership and Management

7. I agree that Government or State should acquire mineral rights and take power to revise defective provisions in existing leases.

In my opinion the disadvantages in private ownership of rights in coal are, (a) small plots leased out to small capitalists, requiring more coal left in barriers also for shafts and sidings support, (b) only the easy coal is worked very often to the sacrifice of the difficult coal, (c) only the marketable seams are concentrated on, while seams only slightly less inferior and above are totally damaged by the depillaring or subsidence of the lower seam. While approach to lower seams is entirely cut off, (d) Arable land on surface is damaged as it cannot retain water for the growth of vegetation and also amounts to a National disadvantage.

8. Administration by the State of Coal bearing properties on behalf of the owners, does not appear to be an adequate solution, as there is no need for the State to court litigation.

9. If mineral rights remain undisturbed—Yes. But it would not prove adequate.

10. The state should acquire ownership and operation throughout if full national advantage is to be obtained, as private ownership stands for national disadvantage.

Finance

11. Coal being a rapidly diminishing asset, with ever-present dangers and risks—Under capitalisation will ever be present. Acquisition by State and running on sound lines is only remedy.

12. Not aware. If there are, Government should take steps.

Production

13. About 50 per cent. of pit head cost per ton is paid to labour.

14. This is a very complex question. Improving his outlook, social or domestic or economic would mean losing him as a coal getter. Paying him a bigger rate for work would achieve smaller output per head. Paying him on a wage basis would require hard driving to obtain even ordinary results.

15. The system of coal raising contractors certainly tends to improve output. I do not consider that system resulted in unsystematic mining methods. That is the management's responsibility.

16. The stoppage of E.P. 7 will tend to increased output and co-ordination of the Railways working with that of the Mines would greatly improve output. The number of wagons hours lost daily at loading and unloading ends and in yards, would very near meet the present total requirements and this in turn would increase output, as a mine's raising capacity is reduced in direct proportion to the handling and despatching capacity.

Distribution and Marking

17.

18. I consider there is a case for complete regulation of the use of different coals for different purposes. Something like a war time measure can be adopted immediately to cover the period during which the analysis of all the coals is completed. The inferior coals must be brought into use immediately and saved from willful waste.

19. Anything short of complete regulation will cause a waste of inferior coals.

20. The responsibility for the despatch of the correct coal by a colliery should be with the management only.

21. Sizes of coal to meet market conditions.

(1) Steam Coal=2" + over.

(2) Steam Rubble=1½" to 2½".

(3) Rubble=1" to 2".

(4) BB Rubble =¾" to 1½".

(5) Smithy=½" to ¾".

(6) Dust=below ½".

(7) Run-of-Mine Steam=all over 1" mixed (not screened).

(8) Run-of-Mine Slack=all under 1½" mixed (not screened).

(a) Run-of-Mine=Steam+Slack mixed.

Transport

22. The Zonal basis idea would tend to prevent wagons being sent out too far but in practice this will have to be governed by the ability of the coalfield to cater for the requirements of its Zone, in both quality and quantity. It could however be worked on a wagon exchange system. Say Field A coal was diverted to Zone B. Then Zone B would exchange empties for loads immediately on receipt of loads in the Zone.

23. I doubt if this would be workable to mutual advantage of undertakings.

24. The uniform basis of freights for all qualities appears sound enough, as actually quality is of no account to carriers, their concern being weight X distance or ton miles.

25. In my opinion freight rates for coal in mutual fairness should be influenced by (1) costs of moving the coal on the Railways.

26. Yes. To the extent that the Railway would save by.

27. The three bottlenecks are a source of worry and expense and disorganisation and should be expanded so as not to hold up traffic and necessitating routing.

28. I cannot see how this would improve supplies. Allotment should be done by the Divisional and or Sub-Divisional Offices. Indents received 24 hours ahead of requirements—cancellation permitted upto within 10 hours of supply, so that those wagons can be utilised on the same date. Loading time should be 10 hours and two supplies daily in order to keep wagons moving. Wagons lying idle or stabled in various sidings should be brought in and put in circulation. Two supplies daily would mean shorter trains and less Loco Power per train.

Price and Profits

29. A return to free competition in coal prices is not at all desirable. The Government should have power to fix the price, a system of fixed prices for different grades would appear best.

30. I do not consider that control over the prices of coal supplies to I.G. Railways and Steel Companies would be sufficient to stabilise condition in the Industry.

31. The Government could bring representatives of the consumers concerned and the producers of the quality concerned together, and fix the price after due consideration of both interests.

32. All the grades would have to be considered, so they must first be known or else it may be found that it may not prove profitable to produce a certain grade or quality resulting in loss of that resource.

33. In my opinion actual working cost plus 25 per cent. would be a reasonable basis for price fixation. The element of profit being about 25 per cent.

34. The middleman will be cut out altogether, when the Government handles the matter, as there will be no need of an outside agency to bring the buyer and seller into remote touch.

Taxation

35. I do not consider that the coal industry is unduly heavily taxed. Taxes must be levied on industry.

National and International Commercial Policies

36. No coking coal should be exported on any considerations. Non-coking coal in excess of the country's home requirement—if any could be allowed to build up a natural export market.

37. The implementation by India of international conventions in respect of Colliery labour, has had an adverse effect on the industry and on the domestic life of the labourer especially on the widows and fatherless children and tends to increase the incidence of separation between married couples.

Conservation of high grade metallurgical coal

38. Coking coals which are capable of producing 1st and 2nd class Hard coke (1st class or steel manufacture). The deposits of this coal are very small and should be controlled in case, if the steel industry of this country is to be reserved.

45. A very urgent case exists for restriction of metallurgical coal to Iron & Steel works and other metallurgical Works only, because the present deposits are rapidly being exhausted.

46.. See 45.

47. Mines producing such coal should be controlled by a permit system and prevention of the use of this coal for any other purpose by law

48. This is one of the outstanding reasons why the state should own the mines not only those producing metallurgical coal but all coals. The drop in output brought about by the control of the mines producing metallurgical coal,

should be made up by the mining of the inferior coal increasingly, even to the extent of having to mix with a better grade (non-coking) coal. This would call for modification of consumer plants to suit fuel.

49. Statutory restriction of the mining and use of metallurgical coal would not be fair to private ownership. Nor would it ensure that private enterprise would turn to the production of the inferior coals to make up the deficit. Nothing short of state ownership and operation is necessary, if the national interest is to be saved effectively on the long term policy.

Conservation of high grade steam coal

50. A high grade steam coal is non-coking non-caking, lump coal over 2" in size and of comparatively low ash content. It is most suitable for rapid steaming. Is best suitable for mails and expresses.

51. Because of the ridiculously low price of coal before the war steam coal was being used for almost any purpose. Its use should preferably be restricted to such purposes as essentially used rapid steaming. Steam Coal for Railway should be restricted to use for the fast trains only.

52. There is not the same urgency for the restriction of high grade steam, coal, as there is for metallurgical—sufficient restriction will automatically take effect after analysis and price fixation.

53. State Ownership and Control must embrace all grades of coal if it is to be nationally effective. Control of one grade for instance does not end there. The rationing of that grade would mean arranging another grade to supply the deficiencies to keep trade going. If demand exceeded supply at any time for any grade in private ownership prices would be forced up or the supply would not be forthcoming. Thus adversely affecting the national effort.

Conservation Generally

54. Percentage of extraction is about 75 per cent. There has been a slight improvement in recent years, but this is more than off set by the vast quantities left in for safety purposes.

55. There is room for improvement in the existing mining regulations for securing the maximum extraction of coal. Stowing is necessary at every mine to obtain maximum extraction. In mines where more than one seam exists the initial barriers and their relative positions are not indicated. Extraction is permitted in lower seams without extraction of upper seam. In Pillar and stall workings extraction is permitted midway between shaft and boundary.

56. Question not clear.

57. Enforced stowing should be extended to include stowing for conservation purposes as well as for safety, to all seams of commercial

value. Stowing should not be assisted. In State ownership and control, this point does not arise.

58. Government should acquire sand rights but should not deliver sand for private stowing. In state ownership specially would acquisition of sand rights be necessary.

59. Yes. A rate suitable for Bigha of arable land preserved by stowing.

60. The Authorities have tried to lock up as little coal as is safety possible, under roads and track. To get out this locked up coal before it may be lost irretrievably stowing would be necessary and indeed in most cases the only solution. Coal locked in becomes heated from the neighbouring groups and is a danger.

61. 'Pulverised' fuel would lend itself to this country's coals better than calloidal. This would also permit of blending of the inferiors with the better grades to suit the needs and action in the direction of developing pulverised fuel should be taken.

62. The movement of coal saved would be roughly one wagon per boiler per day. Against this is the vulnerability of long supply lines and losses.

63. The present system of soft coke manufacture is the open hearth and recovers no bye-products. The bye-products may be collected by another form of oven and quenching method.

64. Yes. Coal tar is steadily increasing in uses of various kinds and development of the coal tar distillation industry in this country should go forward. Soft coke would be very suitable and an economical domestic fuel.

MINING LEASES AND FRAGMENTATIONS

65.

66. Omission of provisions in the leases for 'In stroke' and 'out storke' working is one of the main causes of premature extraction, and loss.

67. I have no comments to make.

68. Standardisation of Royalty rate and abolition of *Selami* seem to be called for.

69. An uneconomic Colliery holding is one in which owing to peculiar difficulties, the production cost exceeds the selling price. There are possibly no such holdings at present. Fragmentation is brought about by the small private owner, the small capitalist certain geological features. Market conditions.

70. Uneconomic Colliery holdings cannot be undesirable in the national interest, as long as coal holds its place for Commercial and Power purposes.

71. Legislation may be able to get round that part of the fragmentation problem brought about by insufficient capital but not that which is due to geological feature. For certain practical working conditions the size of a holding cannot be indefinitely large and a group of Collieries contiguous to each other cannot be worked as one holding although they may belong to the same owner.

(1) appears to me to be the most practical method, i.e., the 'State ownership of mineral rights and subsequent amalgamation of leases where possible or desirable'.

OPENING OF NEW COAL FIELDS

72. Not aware of any.

ADMINISTRATIVE MEASURES

73. The present system seems satisfactory.

74. The one Government Department already contemplated to control coal should attend to these items also.

75. I think it would be advisable to unify these bodies.

128. WRITTEN EVIDENCE OF MR. K. C. KHANNA OF WESTERN BENGAL COAL FIELD LTD.

Questionnaire No. II

1. In our opinion, the coal mining should be transferred to the Central Govt., and should not be left to the Provincial Governments as was the case before the War. The Central Govt. should enact legislation to vest in itself the power to regulate mines and generally control the mining interests. They should also lay down terms of granting of leases by the present holders of coal properties in India.

2. In view of the national importance of coal, it should not be stored in with the general Mining Department of the Govt. of India but a separate Department should be created to deal with it.

3. We consider that the structure of the units of production in the coal industry as outlined in the question is satisfactory. Having regard to the traditions in India and to the unsatisfactory development of banking as also to the fact that even now Capital in India is shy, it is necessary that Managing Agency should continue

4. The system of Managing Agents has not outlived its usefulness. Managing Agents are needed not only to arrange finance for a new concern but also to give the necessary strength to an existing concern. As we have already

said, the Banking system in India has not properly developed, and without the help of Managing Agents, collieries will pass into the hands of a few rich persons and the ordinary investor will be debarred from investing his money in collieries. Furthermore, a large amount of organisation has to be set up for proper distribution of coal. Responsible Managing Agents are able to manage it in a much better manner than an ordinary individual would be able to do.

5. We are of opinion that the system of coal raising contractors does not lend to improve the output on the whole. It may result an increase in output at certain collieries but, sometimes, it also results in bad mining conditions and ruin the collieries.

7. It is not desirable to disturb the existing rights that have been acquired. Obviously, the acquisition of private rights will create a great disturbance and it will be a complicated affair for the Government to make the necessary adjustments to pay compensation to those whose rights would be disturbed. Nor should Government interfere with the so called unilateral, but which are really bilateral, professions in existing leases. Without disturbing existing leases and without interfering with the right of private transactions the legislature has the right to pass such laws as may be deemed to be necessary to check dissipation of natural resources.

8. We are afraid that Government will not be able to efficiently administer the coal-bearing properties. Hitherto the experience of State management of commercial ventures has not been satisfactory. If Government take into their hands further business concerns, we are afraid the management will become still more unsatisfactory.

9. As we have already said there should be no state control over the coal-bearing lands. Apart from the delay that will necessarily ensue as a result of it, there is bound to be corruption which should be avoided by all means. Private transactions in the matter of leases should continue but the State may pass such laws as may be necessary to conserve coal resources.

10. The above answers cover this question. We would only add that, in our opinion, the State should not exercise control over production or distribution or marketing except to the extent necessary to prevent dissipation of coal as such or metallurgical coal.

16. If the industry is given proper help by the Government in acquiring machineries, railway siding and labour we think the deficiency between the requirements and available coal will not be as estimated. At some collieries the loading accommodation is insufficient to meet the proposed increased output and as such the collieries are reluctantly compelled to restrict their outputs. Some collieries have to transport the coal over a long distance to the siding and the cost compels them to restrict their raisings.

17. We think that the present system of price fixation is adequate. The fixation of price according to quality is the right basis but, apart from this, Government should not interfere in the actual marketing of coal. However, in purchasing of coal for Railways, preference should be given to lower grades of coal, and suitable locomotives be designed by the Government for such purposes.

23. We do not think that the suggestion of pooling of railway freights to keep the price of various places at the same level is practicable. The industries which are situated in or near the coal fields will find that their cost of coal at the factory will be increased only to provide coal at a lower cost to the outlaying industries. This in our opinion is unfair.

24. To encourage use of lower grade coal by the industry, there should be a difference in the rate of freight. There should be lower rates of freight for lower grades of coal.

25. The freights rates of coal should be influenced by the principle of "what the traffic can bear"

32. The difference in prices for different grades of coal f.o.r. colliery siding or loaded in trucks in different grades of coal as classified under the present Colliery Control Order seems to be alright.

34. The middleman's commission should, in our opinion, not exceed 5% of the price of coal.

45. The deposits of metallurgical coal are very small in the country and, in view of the increase in the metallurgical industries in the post-war period, it is absolutely essential to restrict its use only for smelting purposes. The consumption of metallurgical coal for steam raising and other purposes be prohibited entirely.

49. All sources of metallurgical coal should be acquired by the Government. The Government should find out the requirements of the country for metallurgical coal and they should make arrangements so that only such requirements are met from the Government's own resources of metallurgical coal. Government might, however, further to acquiring this coal, might lease it out to contractors who can raise and despatch this kind of coal under Government license. We suggest the acquisition of metallurgical coal by the Government because, in order to conserve the resources of India, it is absolutely necessary that use of this coal for purposes other than smelting be prohibited. By prohibiting the use of this kind of coal the Government, unless it acquires the resources, would be doing injustice to the holders of this kind of coal because they have sunk capital and developed collieries which will all remain idle because of such prohibition.

51. Under the present system of distribution of high grade coal some times used for brick and

lime burning, is nothing but sheer waste. High grade coal should only be used for steam raising purposes where low grade coal will not be suitable for the industry.

53. No case exists for State ownership of high grade steam coal. The only restriction which is necessary in this case is as is suggested in answer to question No. 51.

58. The Government should lease sand for towing purposes at fixed price to all collieries irrespective of their situation. The system prevalent at present is not very encouraging. For this reason, the amount granted to different collieries by the Government for stowing purposes is not enough to meet the total requirements of collieries. Only collieries which are very near to river beds can take advantage of the present system. For this purpose, if it is at all necessary, the Government also should acquire rights for sand quarries.

64. We think that there is a special case for developing the coal-tar distillation industry in India as this would make up for the lack of petroleum and other natural gases in the country. This can only be done however when the primitive methods of producing soft coke are done away with and modern methods are introduced.

70. We consider that uneconomic colliery holdings should no longer be continued and they should be merged with other collieries to make the holdings workable. This would ensure maximum output of coal with minimum loss.

71. The legislation should be enacted for ensuring that areas leased in future are of proper economic size. Not only that but when the areas are leased out it should be borne in mind that natural underground barriers such as outcrops, faults, or dikes are fixed as frontiers.

75. Yes. Unification of the multiple bodies dealing with utility and health services in coalfields is essential, and not only that but the single body should in its turn be amalgamated in the statutory body mentioned above.

129. WRITTEN EVIDENCE OF M/s. SHAW WALLACE & Co., 4, BANKSHALL STREET, CALCUTTA.

Question No. 33 of the Indian Coalfields Committee's Questionnaire, dated 1st February, 1946.

The above question deals with the acquisition of surface rights over land for colliery purposes.

Arising out of this, the necessity for legislation might be considered to allow colliery companies to work out all the coal underlying their leaseholds on paying reasonable compensation for surface damage. We give below a note on the position in one area at our Patmohna Colliery, which serves to illustrate this point, and shall be obliged if you will bring this to the notice of the Committee.

"We have permission to depillar from the superior landlord, the tenants have obtained a permanent injunction, restraining the Company from interfering with support of the surface. All depillaring in this area is, therefore, at a standstill, and unless a settlement can be come to, the only expedient will be to strip the pillars in such a way that ample support will be left, the remainder of the coal being abandoned. In addition to the loss of coal, there will be the added danger of risk of fire, involving this and neighbouring properties. Even if sand stowing is resorted to, no guarantee can be given that the surface will remain exactly at its present level.

A settlement may, possibly be made with the tenants in this case for prospective damage, but it may, however, come in future that a landowner may refuse absolutely to allow any prospective damage to his property, when the coal left for support will be lost for ever.

Legislation should, therefore, be introduced, giving powers to an Authority to grant lessees the right to withdraw support from such surface land in the ordinary course of working."

130. WRITTEN EVIDENCE OF SHRI KRISHNA COLLIERY CO., KHUDIKA COLLIERY P.O. SALANPUR, E.I.R. (BURDWAN)

Questionnaire I.

General.—The Coalfields Committee 1920 which revealed the wasteful working of coal in general justified in recommending the establishment of a controlling authority expressing therein their views on vital points concerning economic and safety workings:—

(1) Amendment of mining Lease—compelling both the lessor and lessees to abide by the terms prejudicial to their interests as well as to this national wealth—coal which is decreasing daily should be made forthwith. In all Mining leases the clauses allowing in-stroke and out-stroke, work mentioning fully the rate per ton of way-leave should be inserted. Fragmentation of coal land should be avoided by law, regulating the grant of leases. All new leases must have the approval of the proposed controlling Authority who would see to the general interest of all concerned until such time the control by the State comes forth.

(2 to 10).—Powers of controlling of workings and dipillaring have already been given to the Mines Department. The proposed controlling Authority in co-ordination with the Mines Department should organise the works fully.

The Scheme for conserving coal for metallurgical purpose should be made without delay. Coal seams of all qualities should be worked and made to consume according to the needs the grade of coal with which they can barely keep pace with the situation. Some further improve-

ment in the policy of stowing should be made so that the losses of all sorts of coal may be avoided.

II

Grading and Exports.—The grading of coal is essential and should be practised all along in part or in whole of the seam as may be needed.

III

Port facilities.—These may be left to those interested in the export of coal.

IV

Question No. 13 to 22.—Suggestions of the Mining and Railway Advisory Board would be sought to solve these problems.

V

23. *Raising cost.*—This Khudika colliery has been working a 4 feet thin seam of Selected "A" grade with various technical difficulties hence its raising cost is naturally abnormal and can not be a model one, hence not worth mentioning.

24. I think on the whole 2/3 of the total output of the coalfields in India still is won by the manual coal cutting. Statistics of this may be had from the mines Department. The introduction of mechanical coal cutting has got good bearing to minimising the cost per ton, in most cases the mechanical coal cutters do not give desired results and general development is necessary and possible.

It is obvious that if the rails are laid up to the working faces, it will facilitate the coal raisings in every respect and with economy.

VI

(26 to 30). *Railway coal requirements.*—These questions are only intended for Railway Organisations.

VII

31. The Committee should arrive at a proper conclusion after proper scrutiny in the matter of stowing.

32. This colliery is not doing any stowing work.

VIII

33. *Miscellaneous.*—The trouble over the acquisition of surface land for colliery purposes is seldom experienced. Where controversy in fixing up the value of land arises, this may be settled by the land acquisition Deputy Collector and the Bengal tenancy Act has full scope for it, to deal with,

where the surface and underground right belong to one landlord. In case of different landlords remedy should be sought under *Land Acquisition Act 1894*,

34. Result of experiments on briquetting of coal is not known fully.

35. Formerly it was supposed that washing of coal in India would be of no avail, but of late the Principal of Dhanbad School of Mines has experimented by some process the economic value of washing and expect, hopeful result of it. Dr. C. Forrester—the Principal—has derived perhaps desired result by his froth floatation method and this removes disappointed idea of Randall as recorded in the records of Geological Survey of India.

36. Nothing to comment in the matter.

37. Crude Benzol only has so far been extracted out of the manufacturing metallurgical coke. Encouragement is no doubt necessary, to get sufficient varieties of Byproducts from coal as in the advanced countries like Germany, Russia and others, where by-products even from inferior coal is in progress.

38. For the time being the rescue arrangements are adequate regard being had to the limited number of gasy and deep mines as at present have been working.

39. No private educational facilities any where excepting the initiative taken by Mr. Barraclough the C. M. E. of Messrs. Bengal Coal Co. Ltd., at Sanktoria. The Dhanbad School of Mines is the only institution of Mining. More Mining Schools are necessary particularly to gain elementary knowledge of Mining in mining Centres.

40. The Coal Companies should build colonies for these migratory labourers to settle permanently close to the collieries where possible with facilities of cultivation around these colonies, where arrangements for school, sanitation, sports and water supply should be made to attract these labourers.

131. WRITTEN EVIDENCE OF M/s. J. K. INDUSTRIES, CAWNPORE.

I

1. *General.*—The technical nature of the subject is this question precludes us from commenting upon it.

II

2. *Grading and exports.*—No. The question of the export of coal cannot now be regarded as of great importance. The contemplated vast industrial developments in the future will of necessity increase the coal requirements of India and it is possible that it will not be

necessary to find any market for our coal outside India. It is, however, very difficult in view of the uncertainty and extent of industrial development in future to say whether or not any efforts will be required to regain the markets lost during the war. We, however, are against exporting metallurgical coal.

Questions 3,4,5,6 don't require any comment in view of our remarks on question 2.

7. The question of regrading of coal seams requires careful investigation and action in the light of the results of the investigation is suggested.

8. Unless the grading of coal is made compulsory the chances are that no grading will be done. It is, therefore, essential that the grading of coal should be made compulsory. Moreover, the grading should be such as will suit different industries and concerns. Inferior coal should only be issued to such concerns where power load is not heavy, and good quality coal should be supplied to those concerns where power load is heavy. This will require investigation and study of the requirements of different industries and concerns.

9. We are not in a position to say as to what the exporters of coal consider, but we do feel that quotation in sterling will not assist the coal mining interest in any way in the overseas markets.

III

Port Facilities.

Questions 10, 11 and 12 do not concern us and therefore we do not offer any comment.

IV

13. *Railway Facilities.*—The estimate given in the question is the movement of approximately 32 million tons. In our opinion the present arrangements for the movement of this quantity are inadequate. In this connection we have also to consider that coal has also a busy season, which it should not have, along with other commodities. It is essential that there should be no busy season for coal. Arrangements for raising etc. should be so made that there may be a constant flow of coal throughout the year and thus eliminate congestion. It is also suggested that special type of trucks should be earmarked for the coal traffic which should not under any circumstances be used for any other kind of traffic and if the traffic is spread over the whole of the year, a smaller number of trucks will be able to cope with the traffic for which very large number of trucks and wagons are required when the movement is confined to the busy season only. We therefore suggest that a thorough investigation into the working of the coal traffic as also the raising should be made and the results of the investigation given effect to.

14. There should be no time limit for the supply of wagons to collieries and in fact we feel that

the wagons should be made available throughout the 24 hours of the day and quicker turn over of wagons assured.

15. If the present method of allotment of wagons for coal will cease, great difficulties will be experienced in the movement of the coal traffic. We therefore recommend that the method of allotment enforced since 1940, which has worked satisfactorily, should be continued.

16. Free weigh bridges should be supplied to important and large collieries or in the alternative, a rebate of one anna per ton allowed to collieries having private weigh bridges should be restored. We cannot say as to what the exact causes were which lead the B. N. Railway to withdraw this concession.

17. Experience shows that coal is not delivered full weight at the delivery end. There is no arrangement for weight shortage in the freight payment, freight payment being generally governed by the carrying capacity of the wagons without regard to the actual coal delivered at the destination. The railway should, therefore be made responsible for making good the shortage.

18. We find that applications for the extension of railway siding or the grant of a new siding are not dealt with as expeditiously as they ought to be in the interest both of the colliery and the railways. Arrangement should be made to appoint an authority which may be able to deal with such applications quickly so that there may be no unnecessary and unreasonable delay.

19. In view of what we have said above with regard to weigh bridges, it follows that coal being a commodity in which exact weight is very difficult to load and recognising the difficulties, the railways used to allow collieries to load one ton over or two tons under. This privilege was, however, taken away and the actual carrying capacity was required to be loaded. In fact it resulted in putting the freight on the actual carrying capacity, but did not ensure that the coal load was also of the actual capacity. We, therefore, suggest that previous concession of one ton over or two tons under load be reinstated.

Questions 20 and 21. No comment.

22. In view of what we have already stated above that the transport of coal should be spread over the whole of the year and that there should be no busy or slack season for coal this question does not require any further comment, except to say that we do not think it proper to encourage the consumers to obtain their coal in the second half of the year.

V

Raising Cost.

Questions 23, 24 and 25. No comment.

VI.

Railway Coal Requirements.

Questions 26, 27, 28, 29 and 31. No comment.

VII

Stowing.

31 and 32. No comment.

VIII

33. *Miscellaneous*—We endorse the views expressed by the Indian Federation of Chambers of Commerce and Industries.

Questions 34 and 35. No comment.

36. The implementation by the Government of India of the recommended establishment of Fuel Research Institute is very welcome and we endorse the suggestion made by the federation of the Indian Chamber of Commerce and Industries in their reply to this question.

37 No comment.

38. The arrangements for rescue work in the collieries are not adequate. Most modern arrangements as exist in western countries should be adopted as the safety of the mine workers is absolutely essential.

39. We cannot give the facts and figures with regard to the educational facilities that are available at present at the collieries, but we do feel that this is the responsibility of the State, and not that of private enterprise, to educate its subjects. With that end in view we suggest that the States should provide at least primary education to the coalfields.

40. A settled and contented labour force, being an essential foundation for stabilised industry, it follows that such inducements should be held out to the colliery labour force as may enable them to change their migratory habits. Nothing material has so far been done to raise the standard of living of the labourer in the coal fields and it is high time that something substantial in this respect was done, and with that end in view we suggest the following :—

(1) Better pay

(2) Nutritious food at concession rates.

(3) Free medical attendance and compulsory medical examination to check venereal diseases which are rampant among the coal field workers.

(4) Mechanical devices for the cutting and raising of coal.

(5) Better lighting inside the pits and last but not the least.

(6) Housing. If good sanitary, well ventilated and comfortable homes are provided to these persons, the temptations for their leaving for other places will be few and far between.

132. WRITTEN EVIDENCE OF M/S NARBHERAM AND CO., COAL MERCHANTS, BOMBAY.

We beg to inform you that the questionnaires is too lengthy and it requires sufficient time if the reply is to be given by item to item. In order to send you the reply in time, in general we state be-

low our views, as far as distribution, price and middlemen profit is concerned :—

The Distribution may be free so that each consumer may be able to get the quality of coal required by them.

The trade may be free as pre-war so that consumer may get the good quality of coal at the cheapest rate available from any party.

The Merchants who are in line since long with experience of dealing with the Collieries as well as consumers and knowing each other well cannot be thrown out of trade by monopolising the business amongst only few dealers.

We hope, this will give you an idea of our views in general.

133. WRITTEN EVIDENCE OF M/S. KHANNA BROTHERS, MORADABAD.

Referring the questionnaire on paragraph 2 of the terms of reference of Indian Coalfields Committee, received last day we have to say that on account of shortage of time, (as allowed) it is very difficult to give full consideration on the points raised therein, however we would try to bring to the notice of the committee our views on the subject as under :—

1. That through our vast experience of past 30 years (during which the first great war of 1918 also passed) it never appeared desirable for formation of a central marketing agency for coal.

2. No difficulty has ever been experienced by any concern for its supplies, quality, size and rates of coal is under the present War Time, introduced practice. In normal times the coal was being purchased to the choice of the consumers and the consumers were having the advantage of purchasing any quantity of coal to their requirements on account of empty wagons supplies being available freely from railway at the coalfields. The highest jumps of rates for respective qualities of coal was only at Rs. 4/- to 5/- per ton F. O. R. colliery siding.

3. Any organisation made by the Government of India will surely entail heavy cost and serious bindings which consequently will effect the prices of coal and an overlasting trouble will have a stand-still in supplies. This will hamper the big and vast industries of the country as there will be no freedom in the business at all.

4. It is therefore likely that through any such new organisation the consumers will not be at liberty to buy coal of required grade and will have to buy of such undesired grades which may not be useful and economical.

5. Further on account of shortage of higher grade coal which will be preserved and allotted for shipments, Railways and Metallurgical purposes all other national industries and concerns will be enforced to buy a lower grade coal. There will also be chances that the consumers will not have advantage of the slump in coal prices which generally take place after war effects and they may have to pay higher prices even than normal times

Hence under the above circumstances no regulation of organisation and fixation of rates and collieries will be beneficial if arranged of on the lines of War-time practice.

Regulations be made for free and open supplies of empties of wagons by the railway administration as it used to be before War. This will of course help to solve the whole problem of better supplies and prevailing of lowest rates and thus for the prosperity of all the national industries the supplies then will be according to choice of every consumer

We hope that the committee will make a sincere consideration over the view-points mentioned above.

134. ORAL EVIDENCE OF THE REPRESENTATIVE OF THE NORTH PUNJAB COAL CO., LAHORE

The North Punjab Coal Co. is a recent venture working two lease holds near Makeiwai. 14 inclines have been sunk so far without touching coal in the initial stages and the Company is further handicapped by the non-availability of proper technical advice. A bulletin of magazine offering technical advice on the various problems of the industry would be a great help to a concern like this. The Company's working is made more difficult by transport difficulties, viz., the scarcity of motor trucks and the absence of suitable roads. There is also no ready means of getting the coal tested with a view to deciding whether the coal extracted is of appreciable economic value.

135. ORAL EVIDENCE OF MR. LAWRENCE, W. BOULTER REPRESENTING THE BOMBAY GAS COMPANY, LTD., BOMBAY

Question.—You have mentioned that you consume about 66,000 tons annually of coal and that you have been using Dishergarh coal so far, what is your general requirement in regard to the analysis of coal and what variations regarding ash, moisture, volatility can be tolerated?

Answer.—We require what is known as bituminous coal. I have mentioned in my letter that volatility should not be less than 35 per cent. and ash content should not be more than 10 to 11, the lower the ash content the better. Further it must be a coking coal: non-coking coal is useless to us, because the production of coke is almost as important as the production of gas.

Question.—You have been getting Dishergarh coal; that coal is not a high powered coking coal. It has got low coking quality. In India coking coal is understood to be coal suitable for the manufacture of hard coke.

Answer.—In that case, I would say that we do not require hard coke. We require soft coke and for that purpose high volatile coal.

Question.—Have you experimented with any other coal than Dishergarh?

Answer.—Some time ago we tested Parbelia, Dhemomain and Methane coals and other similar coal in the same seam, but we found them no good in the matter of gas.

Question.—Have you experimented with coal from C. P.?

Answer.—Yes, but not in any bulk. We found them unsatisfactorily.

Question.—During war-time, have you had any difficulties about your coal supplies?

Answer.—Yes, and we still have great difficulties. We can't get enough coal. We have a certain number of consumers already connected. To serve them we require an average of about 5,500 tons of coal a month. The Deputy Coal Commissioner says that he can only give 5,000 tons this month, whereas we asked for 6,000 tons basing it on our fairly correct estimates of consumption. I can't of course complain about the quality of the coal supplied to us. We are paying the highest price.

Question.—Do you get your supplies by rail or by sea?

Answer.—By rail. We have our own siding and we used to get rail-borne coal even before the war. If coal is sent by sea, there is a lot of difficulty in transporting it from the dock to our works. We shall have to take it through the city and the facilities available are very limited.

Question.—What was your method of procurement before the war? Now, of course, it is all controlled distribution.

Answer.—We had contracts with Andrew Yules and MacNeills.

Question.—Were the contracts made direct, or through middle-men.

Answer.—Direct with Andrew Yules, made in London by our head office with their head office there.

Question.—You stated a little while ago that the residual product, that is coke, left after the gas is taken away, is almost as important as the gas. Does it find any market in the country?

Answer.—Yes, for domestic and industrial uses.

Question.—Do you briquet it?

Answer.—No. We considered briquetting but so far we have not done any. We have a briquetting machine under consideration at the moment. The breeze finds a readier market than the briquet, and we use a lot ourselves in the boilers, about 500 tons a month.

Question.—I presume that the temperature you reach up to in the retorts is about 400 to 500.

Answer.—Much more than that, about 1300° c. in the combustion chamber and about 1100° in the retort.

Question.—And the type of coke which you get is still called "soft coke"?

Answer.—Yes, but it is a high grade soft coke because of the good quality of the coal. We are

at the present moment getting a carbonising plant from England to carbonise our coal. Our present machinery has been in continuous operation for the last six years without any respite at all and we had the greatest difficulty in carrying out repairs, cleaning etc. So we decided to import and build a carburetted water gas plant with a capacity of $1\frac{1}{2}$ million cubic feet; that is from steam coke and diesel oil, not from coal at all. It will require 50 per cent of our coke production.

Question.—After taking the gases out you treat the coke further with steam and you produce water gas?

Answer.—Yes. We mix the water gas with coal gas and use it. The calorific value of coal gas is 450 and of the water gas about 280. The gap between 280 and 450 is made up by using additional oil to bring it up to a level with coal gas.

Question.—Now taking the thought a little further can you produce water gas from coke produced from low grade coal, that is high ash coal?

Answer.—No. The coke for the water gas plant must be a higher grade coke. In fact we may consider buying high grade hard coke to use in preference to our own soft coke. The water gas plant must have a high grade coke. It must also be remembered that we have to use good coal for making the gas in the first instance. We cannot make and supply any carburetting water gas which has a high monoxide content. We must have 70 per cent. of coal gas which will be made in the normal way with the high grade or the so-called high grade coal to get high grade coke.

Question.—After you utilise your soft coke for water gas producing, is there any use for the residue left?

Answer.—It is only ash, clinker, which has no heating value at all.

Question.—What are the bye-products you realise from your carbonisation of coal?

Answer.—The main products are —

Gas

Coke

Tar

Napthalene etc.

About 10 gallons of tar is obtained from 1 ton of coal.

Question.—What sort of products can be got from the tar by further distillation?

Answer.—

Napthalene

Benzol

Cresosote

and from further distillation all sorts of dyes, scents, photographic materials ect.

Question.—Have you any programme to make all these in your works?

Answer.—Yes, we have. But at the moment our plant is an antiquated one. Although we are making road tar, it is not quite the right type of plant which can make the tar of correct specification.

Question.—You have stated that your cost of coal works up to Rs. 31-5-0 per ton delivered in your works. Under the present conditions, do you think it is high or low?

Answer.—You can judge it only from the competition you have to meet. Before the war under our contract, it was about Rs. 4-12-0. We are in competition with hydroelectricity of Tatas. So, the price of coal is of paramount importance to us. If we raise the price of gas we cannot compete with electricity. It will become unbalanced.

Question.—Have you made any changes in your basic rates as compared with pre-war ones?

Answer.—The rate today is one which was in force 25 years ago. This has become possible because of the increased production and demand.

Question.—Could you tell us your production before the war and now?

Answer.—Before the war it was 750 million cubic ft. and now the production has risen to 1200 million c. ft. per annum.

Question.—Is it, in your opinion, desirable because of the great shortage of coal in the country, that some sort of price control should continue? Or, do you think you can do better if the control goes?

Answer.—Control should continue in the present circumstances. But I do not know whether Government are going to control at a high price or a low one.

Question.—Your present consumption is 66,000 tons per annum. In your projected development do you anticipate any greater increase in the consumption of coal by you?

Answer.—I should say 'not' for 3 years. But I should say that the demand for gas in Bombay could absorb nearly double the volume that is being used at the present moment. The population has increased nearly twice and the demand for gas has definitely increased.

Question.—For the next 3 years you do not anticipate any increase?

Answer.—Because we shall not be in a position to increase the plant capacity.

Section XVII

MISCELLANEOUS PAPERS

136. LETTER FROM M. M. MUKHERJI, CONSULTING MINING ENGINEER, UPPER CHELIDANGA, ASANSOL, E. I. Rly., DATED THE 28TH JUNE 1946, REGARDING FRAGMENTATION AND ECONOMIC COLLIERY HOLDING.

As requested I have the pleasure to give you below my views on the replies to the two questions referred to by you (69 and 70 of the I. C. C.) in particular as well as in reference to this chapter (VI) of the questionnaire in general.

Question 69.—The reply (as submitted) to the first part of the question i.e., regarding definition of an uneconomic colliery holding is correct to some extent but it cannot be regarded as a complete answer to the question as a whole. There are other factors such as quality and structure of coal, the nature of roof, the nature and thickness of stone bands to be removed, the seam being "gassy" or otherwise, percolation of water to be dealt with distance to the Railway Siding, Landlord's terms, natural disturbances within the area and the care with which the workings are planned and implemented, etc., influence very greatly the economic aspect of a colliery holding.

(b) There are, of course, many small holdings being worked at present; but I am not in a position to make any statement as to their extent compared with the number of holdings over 100 acres in area. This matter as well as the position of leases need extensive investigation for arriving at a fairly correct conclusion.

(c) The same thing may be said about the factors responsible for the fragmentation of holdings; but it may be assumed, with some degree of accuracy, that in many cases, limited funds, selfish motives and fear of consequences of joining hands with persons of divergent views and interests and the temptation of making easy money without taking the responsibility of working the coal were mainly responsible for the fragmentation of holdings. It is also equally true that in many cases small colliery owners had no choice but to take the remnants of large proved properties which the big capitalists did not care to take due to faults or some other reasons.

Question 70.—It is extremely difficult to define uneconomic Colliery holdings for the simple reason that such holdings cease to exist as such as soon as they are found to be uneconomic for business purposes. The barriers round small holdings do not affect the national interest any more than the panel barriers left in big mines but it can not be denied that small holdings stand in the way of opening out and proper development of the workable coal seams in deeper zone of the same areas.

The assertion regarding the extraction of higher percentage of coal in small holdings than in big mines can not be accepted as a rule. The fact that the lessees of small holdings cannot afford to engage the services of sufficiently qualified and more expensive staff and cannot afford to adopt adequately the method of modern mining (as the lessees of big holdings can do) cannot also be denied.

The repercussion of such disabilities on the ultimate recovery of coal is inevitable. Yet, the working of small holdings or abandoned area

on economic basis, by small capitalists, can be justified on various grounds, such as unwillingness of big capitalists to undertake such work.

In the national interest and particularly for working deeper seams I consider that small contiguous holdings should be amalgamated; but for the reasons stated in reference to question 69 (c), I do not see much hope of voluntary amalgamation of the different interests. In the enclosed sheet I bring to your notice three such typical cases which would justify Government interference.

I, therefore, consider it necessary to give you below my views in reference to the questions No. 71 and 68 of the I. C. C. :—

(71) I am in favour of state ownership of mineral rights and the control of the existing and future leases as in the central provinces. If, amalgamation of the different existing leaseholds to economically workable units, on equitable basis, be found impracticable, from the Government point of view, I would suggest that the Government should take power at least to remove the impediments of proper and economic development of different holdings by adjusting boundaries etc. on the advice of a Special Officer appointed for the purpose. The party or parties benefited by such adjustments should bear the cost as may be awarded by the Special Officer with the approval of the Government department concerned or a board appointed for the purpose.

(68) If the Government would find it feasible to purchase the royalty receiving right of the landlords I would like to see the standardisation of royalties or fixation of maximum rates of royalties based on the grades of coal worked. *Inter alia*, I would also like to see the fixation of different rates of Railway freight on the same basis.

ENCLOSURE TO MR. MUKHERJEE'S LETTER
DATED 28TH JUNE 1946.

The following is a description of 3 typical cases (in the Raniganj field) in which the Government interference would be of national interest:—

(a) Between the extreme rise workings of "A" Colliery and the dip most workings of "B" Colliery there was a strip of about 3000 ft. long Ghusick seam of an average width of about 350 ft. within the leasehold of colliery. This strip of coal, being bounded on 3 sides by faults, could be economically worked only from the "A" Colliery and the management of this Colliery offered to acquire and work the area on any reasonable terms. But the "Selami" and the Royalty demanded by the other party were considered at the time to be too heavy to enable the owners of "A" colliery, to give effect to the proposal. Due to extraction of pillars in "A" Colliery, this area has since become inaccessible from any other side. Consequently, about 3 lakhs tons of excellent coal has apparently been lost for ever.

(b) An area of about 85 bighas containing about 6 lakhs tons of Nega seam coal belonging to "X" Collieries Ltd., has been displaced by

a fault of about 100 ft. throw. The fault plane being full of " gas " under pressure it was not found possible to reach and work this coal by diving drifts from the existing pits and it was also considered that " Y " Colliery could recover this coal most advantageously. I, for a number of years, tried to effect an amicable settlement between the owners concerned but they would not come to terms. This matter was reported by me in my official capacity as the A. R. C. C. (P) Bengal and Bihar, to the Regional Coal Controller and as approved by him I tried again but failed to arrange a settlement, we having no statutory power to do the same. It is possible that by now most of the approaches to this solid area have been closed due to extraction of pillars in " Y " Colliery and I consider that the recovery of this coal in the future economy will be a serious problem to solve.

(c) In Sitalpur mouza near Ukhara there are about half a dozen landlords holding different interests between the Burdwan Raj and the many lessees working the coal and there are several small reserved areas round which the lessees must have to work. One party has even gone so far as to acquire the mining rights under a 20 ft. to 30 ft. wide village road dividing a leasehold into halves and also making it impossible to work the coal on the dip area by the pits sunk and equipped on the rise half of this property. On the complaint of the lessee of this particular leasehold I, as the A.R.C.C. (P) Bengal and Bihar, was asked by the R. C. C. to try to effect an amicable settlement between all the parties concerned. But all my efforts to do this failed on account of we having no statutory power even to bring the parties together in a meeting proposed by me in which, I hoped, a satisfactory settlement could be arrived at. The party owning mining rights under the village road even went so far as to avoid meeting me on various excuses and thus succeeded in frustrating all my labour in this connection.

I shall not be surprised if the position still remains almost the same as before making satisfactory development and extraction of coal from the whole mouza an impossibility.

137. SPECIAL QUESTIONNAIRE ON THE SUBJECT OF WASHING OF INDIAN COALS ADDRESSED TO MESSRS. TATA IRON & STEEL CO., LTD., 102A CLIVE ST., M/S. ANDERSON, WRIGHT &

2. To what extent would steam coal or run of mine coal have to be crushed or broken up before washing?

3. If it is intended to use the coal solely for coking, is it advisable to crush the coal to dust before washing?

4. After washing, what are the sizes of coal contained in the finished products, viz., what is the percentage of fines, smithy and rubble?

5. After washing, is it usual to dry out the moisture before the coal can be used for coking or other purposes?

6. Could the same type of washing plant be used for all classes of so called high ash coals in the Jharia and Bokaro fields or do you consider it would be necessary to use certain types of plant for different classes of coal according to their chemical or physical characteristics?

7. In the practical tests already carried out with certain coals from the Bokaro and Jharia fields, what type of plant is considered the most suitable and what are the chemical ingredients used in the process?

8. Have you any information on the cost of washing these coals, viz., what would be the cost of washing the ash contents of a coal from 21 per cent to 14 per cent.

9. What would be the approximate price of a plant required to wash, say 500 tons per day of coal carrying 21 per cent. of ash?

REPLY DATED 9TH APRIL, 1946 FROM MR. J. THOMAS, CHIEF MINING ENGINEER, M/S. ANDERSON, WRIGHT & CO., CALCUTTA.

The questionnaire asks for information on the following points:—

(1) Is it practicable to wash all coals containing 15 per cent. ash and over.

(2) To what extent would the coal have to be crushed.

(3) Is it advisable to crush before washing etc. etc.

None of these questions can be answered directly. This problem must be attacked from a different angle and the physical nature of coal seams must be studied individually.

inferior constituents and the costs of preparation.

At this stage it might be advisable to explain briefly the mineral character and composition of coal.

Coal is composed of four components, viz.

Vitrain or bright coal with glossily lustre and having an ash content varying from 1 per cent. to 5 per cent. It is the chief caking constituent of coal.

Fusain. Mineral charcoal. Present usually as soft silky fibres or laminae along bedding plane and associated as a rule with vitrain. Quantity present in the bulk of the coal is very small and may be ignored.

Durain. Dull and usually homogenous in texture varying from 10 to 40 per cent. ash and often gradually passing into shale. Considered to be an intimate mixture of coal and shale.

Clarain.—Bright coal higher in ash than vitrain and lower than durain. Less bright than vitrain and less dull than durain. For our purpose we might only consider Vitrain and durain. Vitrain is very friable and breaks down into slack during mining operations. It usually occurs as thin laminae $\frac{1}{4}$ " to $1\frac{1}{2}$ " thick. Clarain is usually thicker. The ash content of the small coal of some seams, may be 2 per cent. to 3 per cent. (or even more) lower than the average for the seam.

A practical example will serve best to illustrate the problem.

Seam A.

Lithological section.	Ash Analyses.
<i>Stone and shale roof.</i>	
1. 1' 8" coal dull 0' 6" Iron pyrites*	23.55%
2. 0' 11" Coal dull 0' 4" Iron pyrites*	23.60 %
3. 0' 4" Bright coal 0' 2½" Stone band*	13.25 %
4. 0' 5" Bright pitchy coal 0' 6" Stone band*	12.45 %
5. 1' 2" Coal 0' 4" Shale*	20.00 %
6. 1' 0" Coal 0' 1" Stone*	20.50 %
7. 1' 9" Coal	22.15%
TOTAL 9' 2½" Stone floor.	

Bands marked with * are excluded.

Total rejections 1' 11½" i.e., 21.26 per cent. of the whole seam Average ash of coal 21.12%

Coke made from the dust of screened run of mine coal and manufactured in the old country ovens produced a higher grade coke than the coke carbonized in modern coking Plants where the run of mine or even large coal was crushed before being carbonized. The reason is obvious; the natural fines was mostly vitrain and the crushed product included all the durain in the seam.

How then are the low ash constituents—vitrain and clarain to be separated from the high ash durain, for that is the problem.

The first step is to extract the fines by screening. A further reduction in ash in the fines is hardly possible unless some inferior dust has been added during mining operations. The point of difference between slacks of Indian coals and British coals which are usually dirty requires an explanation. As a rule the shale bands present in Indian coal seams are hard and resist breakage. The shale interbedded in British coal seams are invariably soft and during mining operations break down to form a large proportion of the slack. These slacks require washing. The slack of most Indian seams do not. The question as to whether it is economical to wash a seam or not will depend on the percentage of bright coal, dull coal and shale bands present.

The seam contains 90% of durain and after washing the products would be, coal 13 per cent. ash 10 per cent., coal 22 per cent. ash 90 per cent.

It is obviously not a washing proposition. The shale and stone bands can be removed on a picking belt. Another example.

Seam B.—

	Roof	Lithological Section.	Ash analyses.
		Stone	
1.		0' 6" Bright coal	9.35%
		0' 4" Shale.*	
2.		0' 7" Bright coal	12.85%
		0' 4" Shale*	
3.		1' 10" Coal	13.40%
4.		0' 5" Dull coal	24.00%
5.		0' 7" Bright coal	9.05%
6.		0' 4" Dull coal	20.30%
7.		2' 10" Bright coal	12.60%
8.		0' 4" Dull coal	24.40%
9.		1' 2" Bright coal	11.95%
		0' 6" Ferruginous band*	
10.		0' 7½" Bright coal	10.25%
		0' 2½" Shale*	
11.		1' 10" Boney coal	20.50%
		0' 4" Shale*	
12.		1' 10" Hard coal	16.85%
		0' 9" Matti Band	
13.		0' 5" Bright pitchy coal	8.05%
14.		0' 5" Boney coal	23.35%
15.		0' 9" Bright coal	11.80%
16.		0' 4" Boney coal	22.90%
17.		0' 6" Coal	13.35%
18.		0' 6" Boney coal	19.60%
19.		3' 6" Hard coal	17.15%
		21' 9" Floor Shale	

Bands marked * are excluded from sample. They aggregate 2' 5½", i.e., 11.30 per cent. of full section of seam. The average ash of the coal is 15.42 per cent.

Beds Nos. 1, 5, 10 and 13 are chiefly Vitrain.

Nos. 2, 3, 7, 9 and 15 Clarain.

Beds Nos. 4, 6, 8, 11, 14, 16 and 18 Durain.

For ordinary purposes this seam could be treated on a picking belt and all stone and shale removed by hand and also a certain amount of durain, thus producing a marketable commodity with an ash not exceeding 15 per cent.

If this seam was washed the following products may be expected :—

	Proportion	Ash %
Clean coal	62/65	12/13
Middlings	22/25	20/22
Refuse	13/14	

In the first instance, the coal should be screened over ¼" to ½" mesh to remove the fines made from the vitrain. This would probably contain 11 to 12 per cent. ash and may amount to 10 per cent. to 15 per cent. in bulk.

The oversize coal should then be washed and the raw substance divided into three classes, viz., good clean coal, middlings and refuse. The middlings would probably contain durain and some inter-bedded large lumps of vitrain or clarain with durain. The latter should be passed over another screen to separate the small clean durain and the large inter-bedded middlings passed through a toothed roll breaker to be cracked—not crushed, and the cracked coal returned

to the washer for rewashing. Each seam would have to be treated according to its own nature and after trial and error the final processing decided on.

The foregoing deals chiefly with questions 1, 2, & 3.

Question 4.—The proportion of products of varying sizes will again depend on the proportion and hardness of the coal constituents and will vary with each seam and with the varying nature of an individual seam. The fines may amount to 15 per cent., Smithy 45 per cent. and rubble 40 per cent. of the minus 1½" slack and the latter may represent 40 per cent. of the original raw coal.

Question 5.—Drying out moisture from washed coal has only been done in recent years and that only on fines. The coarser sizes drain quite easily and as the fines will be separated dry from the run of mine coal this question does not arise.

Question 6.—In my opinion, a gravity type washer will deal with all the coals in Jharia and Bokaro that are amenable to treatment. Many seams have too high a proportion of durain to be economically treated. In some cases the fines may require treatment and in which case dust extractors for the very fine fractions and a Rheolaveur Plant for the $\frac{1}{4}$ " to $1/10$ " fraction.

Question 7.—From my own investigations the Chance Washer is the most suitable and sand is the only ingredient used in the process.

Questions 8 and 9.—I attach a copy of my note on the history of research into coal washing in this country. It answers several of the questions put forward.

The cost of a 100 ton per hour Plant pre-war was about Rs. 4 lakhs. The present price is more than double this amount.

The cost of a plant to wash 500 tons per day say 50 tons per hour is not much less than the larger size as there is little difference in the main structure. Size of conveyors may be smaller but their lengths would not be less.

I would suggest that Question 9 be put to Messrs. Fraser and Chalmers who would be in a position to give a fairly accurate figure. Much depends on situation, water facilities and topography of site.

I trust the foregoing note will prove of some use and regret it was not possible to give a brief and direct answer to each question. The fact of the matter is there is no simple reply and it is unwise to generalize. Each case must be considered on its own merits.

I would, however, urge the importance of a physical Survey as an absolute, preliminary to any Float and Sink or commercial tests. Unless this is done, much waste of effort and money will be expended needlessly.

In the past it has been known for firms in this country to send large quantities of coal to Britain to be tested. A knowledge of the physical characters of the coal would have saved thousands of rupees and many tons of Indian coal would not have been dumped into the sea after washing. It is useless sending a coal made up of the major portion of durain as the inherent ash is high and its removal requires fine crushing which in turn can only be treated on a Froth Flotation Plant at a very high cost.

NOTE ON CLEANING OF INDIAN COALS

(REFERRED TO IN REPLY TO QUESTIONS 8 AND 9).

Tests to prove the amenability of Indian Coals to cleaning have been made from time to time by private individuals and firms. Unfortunately, the results were not favourable, and no record detailing the processes followed have been published.

The earliest reference I have seen—this was in a private report—was to a test by the late Prof. Galloway who was one of the pioneers in Great Britain. The test was carried out on Assam coal on one of the early type of jig washers. It was unsuccessful. Later, some Jharia coals were examined in the same way by the late Dr. Louis of Newcastle-on-Tyne, and these tests were also failures.

Later, Prof. E. H. Robertson, when at the Engineering College, Sibpur, carried out washing experiments on Nos. 13 and 14 seams Jharia. About the year 1920 Mr. E. C. Evans, a Metallurgist of London, visited India and examined the 1st class Jharia coals. I believe the tests were made on a Draper Washer, which at that time held out hopes of solution on the vexed question of the successful washing of Indian coal. Nothing came of these experiments. Theoretically, the Draper Washer should succeed, but practically it has not been a success. As far as I know this was the first attempt to wash Indian coal by a gravity method.

During the years 1922/24, W. Randall conducted an exhaustive series of tests on Indian Coking coals with the object of cleaning them by the Froth Flotation method which had been so successful in the preparation of metallic ores. The research on Bokaro coals was carried out at my request and with my assistance. I have, therefore, first hand knowledge of these experiments.

In the case of the Kargali seam $\frac{1}{2}$ " slack, having an ash content of 21 per cent. yielded on washing 85 per cent. of clean coal with 14 per cent. ash and 15 per cent. rejects, containing 60 per cent. ash. This result was typical of a number of coals. Randall recommended the Froth Flotation of argali slack for coking purposes, and also run-of-mine Jharia coals up to 20 per cent. ash by this process. The consumption of reagents in the process is large, and makes it very expensive. The cost of cleaning Indian coals was estimated by Randall to vary from Rs. 2/- to Rs. 2/12/- per ton. This process is used in Great Britain for the recovery of fine coal below one tenth inch. Coal of this fineness cannot be washed by the usual washing processes. When dry, it is aspirated before the run-of-mine coal is passed on to the Washery, but as wetting the coal at the face to prevent lung diseases is now becoming the general practice, the Froth Flotation process is likely to be increasingly used to recover fines. It is too expensive for general purposes.

A large proportion of the ash of Indian coals is present in the form of inherent ash. The seams are also frequently banded and contain shale and inferior coal bands interstratified with clean coal. Where the coal is homogenous, e.g., the Bermo seam, and contains high inherent ash, it is not amenable to cleaning by any process known. Pulverisation and cleaning by the Froth Flotation process would possibly succeed, but the prices bars it from practical application.

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Where the seam contains bands of clean coal which is usually softer than inferior coal, it breaks down to slack as it is won and the slack in this case is superior to the average quality of the whole seam. As the clean coal bands become thicker, they are not so likely to break down to slack, but they can be removed by washing. A close physical analysis of each seam is as important as a chemical analysis. The practice of many chemists and Engineers and Geologists too, in India in the past was to take a foot by foot section of a seam and subject that to chemical analysis. This information was very misleading and invariably masked the true nature of the seam as inferior bands of an inch or so were included among good sections of coal. In the investigations of Bokaro coals, this practice was avoided and each band considered individually. Having studied the questions in this way, the characteristics of the seam and its possibilities were then considered. In searching for a process which would deal effectively with coals of difficult washing properties, it was clear from past experience that jig washers were of no value. South-African coals were being successfully washed by a Gravity Washer and these coals are very similar to Indian coals. The question to decide now was, which of the Washers working on this principle was the best. To send large samples of coal for test to each of the systems working in Great Britain or on the Continent, would be expensive and a cumbersome procedure. A preliminary enquiry was, therefore made, and the Float and Sink tests were carried out by Dr. Forrester at the Indian School of Mines. A short note on the Gravity Washer will help to elucidate why the decision was made.

Gravity washing has exercised the minds of Mining Engineers for many years and probably the first plant of this type to operate on a commercial scale was that devised by Dr. Lessing. This employed a heavy medium of calcium-chloride in solution. One such plant was put down in the anthracite region of the South Wales Coalfields and the other in the Sheffield area. Both proved unsuccessful. The former was simply abandoned, and the second replaced by a chance Washer.

About the same time, Thomas Chance was successful in using sand in suspension in water, thus creating a high gravity medium. This has proved successful not only in the U. S. A. where it was made, but in England, South Africa, and Poland, where every plant installed has fulfilled the requirements and easily maintained the rigid guarantee called upon.

The Barvoys process was developed by the Dutch State Mines and introduced into England in 1950. This Washer uses re mixture of barytes and clay. A number of these plants has been in commercial operation in the North of England. In 1939, I visited Brancepeth Colliery near Durham. A Barvoys Washer was in operation there, but the main reason put forward for its

selection was that barytes was being mined in the Colliery where it occurred as a vertical vein crossing the coal seams at right angles. (It was here that I first saw a high frequency electric drill working successfully on the hard barytes.)

The Tromp Washer is another Dutch production. This operates on magnetite. Three have been installed in Great Britain.

It will be seen from this short history that the jig type washer is not suitable for Indian Coals and that a selection from one of the three gravity types has now to be made. The pros and cons are given briefly as follows:—

The Chance Washer has been in operation for a number of years, and wherever it has been installed, it has more than fulfilled its guarantees, which are of a rigid nature. The maintenance costs are lower than any other type of washer. The gravity of the medium is easily maintained and adjusted and can be operated by any man of ordinary intelligence. There are three important points to consider on a gravity washer. (1) Ease of obtaining the material for the medium (2) Recovery of this material and (3) Its separation from the washed coal.

In the case of the Chance Washer, sand is obtained almost any where, and provided it is free from clay, its size is not of the utmost importance as it can easily be classified in water, and brought within a specified size ratio. It is easily separated from the coal and recovered without trouble. Further, sand is plentiful and cheap in most places.

In the Barvoys and Tromp Washers, the results of washing are good, especially when compared with jig and trough washers, but not so good as the Chance. In both cases, the medium has to be prepared by expensive machinery before use. In the Tromp Washer, the Magnetite must be of high quality and reduced by wet grinding to minus 300 mesh. The wear and tear on the plant is excessive in the Barvoys and Tromp Washers, as scrapers and similar plants actually work in the abrasive medium. Maintenance is high in both types and greatly exceeds that of the Chance. Auxiliary plant has to be installed to prepare the heavy medium, and care must be taken when shutting down to see that the plant is free from all material, otherwise, the medium settles down, and due its fineness, it sets hard like a rock. Sand, on the other hand, can easily be loosened by water jets, and in the case of an emergency stoppage, the Chance can again be restarted without trouble. At Hardwicke in Yorkshire, where a Tromp Washer is in operation, a stand by steam engine has been installed in case of failure of the electric supply to ensure that the medium does not settle in the Wash box.

It is claimed that the Barvoys and Tromp Washers can make three products in one box, *viz.*, clean coal, middling and refuse. It must be noted, however, that the middlings, must be extracted separately or the plants would not work. They really make a virtue of a necessity.

Fraser and Chalmers have designed a cone fitted with a middlings tube which can produce either one or two gravity cuts at will. Such a plant has been in operation at the Albion Co.

liery in South Wales for three years with marked success. It must however, be borne in mind that whilst this is easy when the proportion of middlings is low, it becomes difficult with high percentages of middlings; it would entail a large equipment to deal with the increased tonnage. In such cases the Chance method is to use two cones in series, each cone making a single gravity cut. This is simple and efficient as compared with two gravities where in the case of a high proportion of middlings any errors in washing may become serious.

The following comparisons of various types of gravity washers are of interest.

As the finest sizes of coal tend to clog the medium and increase the viscosity thus preventing free settling, the Froth Flotation system is the only process capable of cleaning fines but it is expensive to operate, and will not remove clay.

Chance. Medium—sand.

Plant.—Easy to operate, Sand is cheap, and grading also easy. Loss of medium, lighter than other systems as recovery is simple. Less trouble in operation and upkeep. Design is simple and better than others, as no auxiliaries are necessary.

Cost.—3d to 5d per ton.

Size of coal.—Washes down to $1/16"$ except for fines and dust. No sizing is required before washing.

Power.—1.5£ to 2K.W. per ton washed.

Loss of medium.—may be $4/5$ lbs. per ton but cheap (much cheaper in India).

Barvoys. —Medium Barytes.

Plant.—Bath Temperature 35° C for best results, and must be controlled. Slimes treated by Froth Flotation and medium thickened by Dorr Thickener, which has a diameter of 60 to 80 feet. The coal slimes settle with barytes which are removed by Froth Flotation. This adds to the cost. Clay from shale interferes with gravity as it cannot be controlled, and therefore the mixture is not stable. Auxiliaries are large and skilled men are required to maintain continuous operation.

Cost.—1Sh. 4d per ton.

Size of coal.—Not below $\frac{1}{4}"$, but better $\frac{1}{2}"$. Sizing before washing is advisable.

Power.—4. K. W. per ton washed.

Loss of medium.—3 lbs. per ton and cost high.

Tromp.—Medium. Iron oxide or magnetite.

Plant.—Oversize is cracked down to 4" in a single roll crusher. After shutting down of the

plant, baths must be emptied after every shift and at week ends to storage tanks. Before re-filling the contents must be stirred in a specified manner before pumping into baths. Over a long a stoppage storage tank must be stirred periodically to prevent consolidation of suspension. The plant requires a good deal of maintenance, because of abrasive action of medium in bath mechanicals. Frequent renewals are a disadvantage.

Cost.—Water, Power insurance and general charges at Consett, Colliery Durham cost 1 sh. $2\frac{1}{2}$ d. per ton (Cost of maintenance 50 per cent).

Size of coal.—Same as Barvoys.

Power.—High, owing auxiliary machinery.

Loss of medium.—High 6 lbs. per ton.

The Tromp and Barvoys Washers cannot wash low $\frac{1}{4}"$ whereas the Chance Works down to a $1/16"$. In this connection whilst pre-screening say in the order of 90 per cent. is needed in the Chance Washers, it will operate with lightly reduced efficiency until the end of the shift, even if the screening is bad.

The fines can then be easily cleaned out by ordinary deslurring. In the other cases, however, pre-screening of high efficiency is essential as slurry is not nearly so easily separated from the medium.

A Tromp Washer was installed by the Power Duffryn Co. at their Tower Colliery in South Wales, but this has now been shut down as a failure.

Where the Barvoys and Tromp plants are in operation in Great Britain, they work only on coals of simple washing characteristics, whereas the Chance Washers are dealing efficiently with difficult coals notably in South Africa, where the coals are similar to Indian coals.

Within recent years the two largest Companies in South Wales (These are also among the largest in the Kingdom) the Powel Duffryn and Ocean Coal Co., have been scrapping their jig washers and replacing them with Chance washers.

The following plants are in operation—

Powell Duffryn.—

One 220 tons per hour washing 8" to 0"

One 200 tons per hour washing 6" to 0"

Fines taken out by a reolavour

Two 110 tons per hour each being erected or on order.

Ocean Coal Co.—

Four 200 tons per hour 6" to 0"

One 110 tons per hour 6" to 0"

One 200 tons per hour 3" to 0"

One 200 tons per hour 8" to 0"

On order.—

One small plant has been in operation for some time at the South Wales Coalite Company's colliery. This has worked very efficiently at 55 tons per hour of thro-put.

Thus South Wales will have 12 plants having a total capacity of over 2000 tons per hours in operation.

ration very soon (1945). Only seven of these were working 6 years ago, and repeated orders were made on the results obtained on the early plants. The newer types erected are in improvement on the older ones.

In view of the undoubted success of the Chance Washer, in this country, and the repeated orders by Firms like the Powell Duffryn and Ocean Coal Cos., both of which maintain a large research staff and laboratories, I am convinced that the decision to test Bokaro coal on a Chance Washer was the right one.

General.

Gravity washers are cheaper to operate on large 'Thro-puts'. The cost of operating Picking Belts is about 9d. per ton.

There were in 1944, 176 Chance Washers in operation in various countries with a total throughput of nearly 50 million tons.

36 million tons The U. S. A.

4 million tons The U. K.

42 million tons Plus a few plants in Europe.

REPLY DATED 30-4-46 FROM MR. I. KUBANEK, CHIEF COMBUSTION ENGINEER, COAL COMMISSIONER'S OFFICE, CALCUTTA.

My answers to the Questionnaire about washing of Indian coals are based on laboratory tests and some practical experience gathered during my stay here in India and abroad. As far as I know there is hardly anybody who has a practical experience of the sort to enable him to answer with authority about the economics of coal washing in India.

As the matter is rather urgent and time quite an important factor, I suggest that a Sub-Committee of three or more persons with a sound technical knowledge of Indian Coals be appointed to report to the Coalfields Committee and the Sub-Committee should be immediately asked to visit for a period of 6—8 weeks, places on the continent like Belgium and Czechoslovakia where washing of coal has been practised over several years. I specially mention Czechoslovakia because in this country are found coals of inferior quality which are more akin to Indian coals.

I shall gladly offer my services as one of the Committee members; I have practical knowledge of both the Indian and the Continental coals and I feel my being on the Committee will be of great help in more than one way.

1. In my opinion coal containing up to 24% ash, (corresponding to grade II) can be and should be economically washed, provided the washing is performed so that only two fractions are obtainable, viz., the clean coal and the middlings and provided the middlings which are usually rejected for their high ash contents are also put to use as fuel.

For coals of over 24% ash, the economics of washing would depend on the number of fractions, their ash contents and the means of utilizing the fractions (with up to 40% ash) and, therefore, it would be essential to subject the coal to the "float and sink" test prior to adopting any definite method of washing. The makers' opinion on the possibility of washing coals of over 24% ash and their guarantee of efficiency of the plant should determine the course to be followed. To throw more light on the subject and to explain the economics, how the structure of the coal affects the price of the washed coal, I am giving below the examples of 5 typical cases. In all these cases the pit-head price of the raw coal is taken at Rs. 5 per ton and the washing cost @ 5% of the pit-head price.

Case I

Raw coal		Available washed coal			Available middlings	
Ton	Ash content %	Ton	Ash content %	Price/ton Rs.	Ton	Ash content %
1	16.3	0.92	14.0	5.77	0.08	41.5

It will be seen that in this case it will not be necessary to work on inter-fractions, i.e., light middlings and therefore the coal washing expert must try to find out market or means for the use of the resulting middlings having 41.5% ash. Otherwise the price of coal will increase to Rs. 5.77 per ton as against Rs. 5.25 plus price difference caused by devaluation of usable middlings.

Case II (a)

Raw coal		Available washed coal			Available middlings	
Ton	Ash %	Ton	ash %	Price/ton Rs.	Ton	% Ash
1	18.2	0.8	14.0	6.47	0.2	35.5

In this case it is not necessary to work the intermediate fractions, as the fraction available consists of light middlings. The price of the washed coal will be increased by the washing cost and the difference of price resulting from the devaluation of the middlings. If the middlings are rejected the price of washed coal will increase to Rs. 6.47 per ton as against Rs. 5.25 plus price difference caused by devaluation of the usable middlings.

Case II (b)

Raw coal		Available washed coal			Available middlings	
Ton	ash %	Ton	% Ash	Price/ton Rs.	Ton	% Ash
1	18.2	0.81	14.0	6.35	0.19	37.5

NOTE—same as in case II (a).

Case III

Raw coal		Available washed coal			Available middlings	
Ton	% Ash	Ton	% Ash	Price/ton Rs.	Ton	% Ash
1	24.3	0.71	14.0	7.25	0.29	49.5

This case shows that it is essential to work on the inter-fractions to produce light middlings with 35.40% ash for selling out or for using them otherwise. If only two fractions are worked, there will be 0.29 ton of middlings with 49.5% ash which shall have to be rejected. The price of the washed coal therefore will be Rs. 7.25/ton against Rs. 5.25 plus price difference caused by devaluation of usable middlings.

Case IV

Raw coal		Available washed coal			Available middlings	
Ton	% Ash	Ton	% Ash	Price/ton Rs.	Ton	% Ash
1	25.5	0.64	14	8.0	0.36	45.5

This case also requires working on inter-fractions in order to keep the price of washed coal as low as possible, otherwise with 2 fractions only i.e., with washed coal and refuse the price of washed coal will be Rs. 8 per ton.

2. The extent to which coal should be crushed before washing depends on the structure of the coal, the thickness of the seam together with the method of mining it and the presence in the colliery of a separating plant to remove the shale and stone pieces from the coal as mined.

The different sizes of screened Indian coals have shown that the percentage of ash, as a rule, in the "fines" is lower by 40% of that in the coarser pieces. Where the size requirement would permit, therefore, it would be advisable to screen out the "fines" for direct use and subject the bigger sizes to washing in lumps or after crushing.

Washing either in the crushed or coarse stage depends on the utilization and the structure of coal. For the coke ovens the coal should be crushed to below $\frac{1}{2}$ " size and for other purposes to a size that would suit the requirement. But I might as well point out that removing of ash from coarse pieces is not so efficient as from the crushed coal because in the former the finely ingrained impurities are difficult to dislodge.

While realising the importance of washing I would suggest only such coals need be washed as are required for the manufacture of metallurgical coke and for use in the furnaces meant for special class of work. The other coals, despite their high ash content, should be consumed as they are, for modern improvements in the furnace design provide for the use of coals with 40% or even higher ash content. The Coalfields Committee are, therefore, requested to look into the question from this angle as well.

3. Dealt with under Question No. 2.

4. The disintegration during the washing period is practically nil and the size of coal passed through remains unaffected.

5. It will depend on the method of washing and also on the distance the coal will have to be carried to the consumers as well as on the use of the coal. Generally, on the continent, in modern practice the moisture is allowed to go upto 8% in coking coals. For other purposes the moisture required

varies and therefore, the extent of drying can be fixed up only after knowing the consumers needs.

Practically every plant is provided with a dryer arrangement for adjustment of moisture.

6. This would depend on the design of the plant erected; but there are some plants which take any kind of coal irrespective of their physical and chemical characteristics. Such plants are built on the Alluviation principle of washing.

7 (a). To my knowledge until the outbreak of war, the most suitable was the Rheo-Laveur type for the Indian coals. The washing medium is water; a small quantity of lime is also used to de-acidify the circulating water. The only disadvantage, however, is that provision has to be made for storing a sufficiently large quantity of water. The loss of water after circulation is about 1%, which has to be made up by fresh water and a plant washing 1 ton of coal per hour needs about 10 gallons of water per minute. Thus a plant doing 50 tons per hour will require $50 \times 10 = 500$ gallons water per minute or 30,000 gallons per hour for circulation plus 300 gallons more for make-up.

(b) There is another design called "Chance" or "Flotation Process" based on the use of liquids heavier than water. The medium is a mixture of sand and water. Besides the disadvantage of the 'Rheolaveur process' of having to use a large quantity of water, the Chance Process suffers also from the fact that a considerable quantity of the 'fines' (of coal) is lost as it cannot be separated from the sand, both being of almost the same Specific gravity and size.

8. Before the war on the continent the cost of washing was on an average, 3% of the pit-head price of coal. In India I consider it should not go over 5% and for my calculations under Question 1, I have taken this figure as the basis.

9. Not known.

REPLY DATED 14.4.1946 FROM MR. A. FARQUHAR
SUPERINTENDENT, COAL DEPARTMENT, THE TATA
IRON AND STEEL CO. LTD.

1. (a) In the early stages of the Coal Industry tests were made by various people on the washing properties of Indian coals. The seams worked at that time were what are known today as the better grades, namely Dishergarh seam in the Ranigunge Coalfield and 12, 13, 14, 14A, 15, 17 and 18 Seams Jharia. Whether it was by chance or not, only the best areas of these seams were exploited. They were comparatively free of shaly bands and clay in the portions of the seams extracted. The ash varied from 8 to 15 per cent. Since the ash was largely inherent and substantial reduction could not be obtained by the methods of testing at that time, everyone concluded that Indian coals could not be washed. Since there seemed to be abundant supplies of coal from the above mentioned seams, interest in the matter dropped and the more inferior seams which were not intensively exploited were not adequately investigated.

(b) About the end of World War No. 1, certain interests brought Randall from England to carry out a more systematic enquiry into the washability of Indian coals. By this time the general impression about inherent ash prevailed very strongly and Randall carried out his research work on the basis of "Froth Flotation". Here again his enquiries were chiefly concerned with the better grades of coal from the seams mentioned above and the results were practically the same as those found earlier research workers. This strengthened the idea that Indian coals could not be washed as the ash was largely inherent. No enquiries had been made along the lines of "Water Separation" or separation in mediums of a higher specific gravity. With the increasing exhaustion of the above mentioned seams and the increasing exploitation of the other seams, the percentage of shaly bands and clay produced from the mines increased and the average grade of the coal despatched from the Coalfield became increasingly poorer. Still the impression prevailed that the coal could not be improved on account of the failure of earlier washing tests. It is difficult to understand how this impression prevailed so long since it was obvious that the coal could be conditioned even by manual labour and large numbers of shale and stone pickers were employed for this purpose. Whilst markets were bad, the producers intensively employed hand labour to condition their coal in order to secure sale. When markets were good, these precautions were neglected and consumers were compelled to accept delivery of coal with large percentage of foreign material. It did not seem to occur to the producers that where coal could be conditioned by manual means, it could be more effectively and cheaply reconditioned by mechanical means provided the early errors resulting from the research of previous enquirers were ignored or discounted. It was also obvious that "Froth Flotation" would not meet the conditions and that Heavy Liquid Separation should be adopted. Laboratory research on these lines was then carried out by a number of independent enquirers and also by some large consuming interests. From the practical point of view it was obvious that where manual labour could pick out the stone and shale, the Heavy Liquid Separation Plant would be successful. Enquiries in other countries, particularly in Wales, South Africa and America confirmed this. In Australia similar difficulties were encountered and the question was solved by "Heavy Liquid Separation". Individual tests carried out by our Company have also confirmed that the shale and clay bands and rough grained coal (bearing high ash) can be conditioned by these plants and give a reduced ash content with regularity and consistency from day to day. The advantages over the manual means of conditioning are that by this means consistency and regularity are not obtained since the degree of quality is governed by the efficiency of the labourer.

Up to 1938 washing tests were merely on a laboratory scale but in that year I obtained the sanction of Sir Jehangir Ghandy to bring out from England the first small scale testing plant. This was put into operation with Carbon Tetra Chloride medium and all our difficult coals were

tested with satisfactory results. The results as obtained on this plant were forwarded to various manufacturers who accepted the data obtained as satisfactory and were prepared to put up quotations for plants to meet the conditions. One manufacturer in particular showed a decided preference for the tests being conducted in India and discouraged the forwarding of bulk samples to England, the reason for this being that bulk samples forwarded never reached their destination in the physical and chemical conditions in which they were despatched. Tests carried out abroad on such samples were liable to be misleading. Subsequent to the testing of our difficult coals, the testing plant in question was handed over on loan, to Dr. Forrester at the Indian School of Mines, Dhanbad, to conduct tests on behalf of the Fuel Research Committee (of which I am Chairman). Since that time Dr. Forrester has put through well over 100 samples and since he has been authorised by the Director of the Board of Scientific and Industrial Research to submit a note to the Committee on this, I refrain from making any comments.

(c) The question then was what type of plant to adopt and these can be divided into two categories:—

(i) Ordinary water separation represented by the "Baum" as manufactured by Simon Carves where the good coal is floated out from the heavier foreign material by simple pulsation. The respective sp. gr. of water and the materials to be dealt with are too wide to meet our conditions in India.

(ii) Heavy liquid separation represented by "Chance", "Barvoys" and "Tromp". These are all similar plants in principle but a heavier density of liquid obtained by different means. They all vary in Capital cost and maintenance, but the item which governs the cost to a large extent as far as operation is concerned is the type of material utilised for giving the density of the washing medium.

I shall deal with the above as follows:—

(i) Tromp The "Tromp" utilises iron oxide or magnetite to give the density of the medium.

(ii) The "Barvoys" system utilises Barytes (Barium Sulphate) as the medium, but in Australia they use Blast Furnace Flue Dust, since the cleaning plant is adjacent to the Iron Works.

(iii) The "Chance" system utilises sand which is readily available in the Indian Coalfields. Extensive enquiries made by Mr. J. Thomas, C.M.E. of Anderson Wright & Co., Ltd., over a long period of years proved that the "Chance" system is the most efficient and economical for the conditions we have in India. This has been confirmed by enquiries in Wales and South Africa. This system is probably the most modern development of coal washing as far as banded seams are concerned and which contain a great deal of high ash rough grained coal.

All these plants can either give one product with reasonably low ash content and a large percentage of rejections or they can give two kinds of coal namely consistent low ash and a middling product with a higher ash which results in a smaller factor of rejections. The tests carried out on this

system indicate that certain of our high banded seams can be materially improved with a reasonable factor of rejections. The chief advantage of the "Chance" plant is its low operation cost and its high degree of automatic control. The comparative costs of the three systems are

"Chance"	"Barvoys"	"Tromp"
3 annas to 5 annas per ton.	14·2 annas per ton	12·9 annas per ton.

2. In "Heavy Liquid Separation" the coal need not be broken down to less than 4" and even 6" size can be washed. For West Bokaro coals and 16 seam and Jorapukur seam, Jharia, it is proposed to break down to 3" not because this is necessary for washing purposes but because it is necessary for the design of our slot bunkers at the Works. In production of run of mine coal and on account of crushing to the required sizes, considerable quantities of dust are produced. These fines are screened out and can be washed down to a size of 1/6" in the case of "Chance Washer" by an automatic adjustment on the plant. Similarly, in the case of "Barvoys" and "Tromp" the smalls can be washed down to a size of 1/4" by similar adjustments but which are not so automatic. The smalls below these sizes are generally low in ash and do not require washing but if a finer product is required, "Froth Flotation" or "Pneumatic" cleaning can be resorted to.

3. Where the coal is to be used for coking, it is not advisable under the above system to crush below the size specified by the manufacturers of the plant where "Heavy Liquid Separation" system is adopted. If the "Froth Flotation" system or the "Pneumatic" system is adopted as an auxiliary process, fine crushing is essential. This in practice will only be found necessary where an exceptionally low ash product is required.

4. The washing process does not materially affect the fractions except in so far where crushing is done to reduce the size to 6" or 4". This crushing may probably add a few per cent. to the fines but does not materially affect the finished product. What does affect the finished product is the point at which the 'cut' in washing is made. This can be better understood from a study of the "Float and Sink" table for Digwadih 16 seam, produced in the appendices* attached to this report. If the 'cut' is made at a sp. gr. of 1·5, the percentage of clean coal produced is 87·08 and the rejections 12·92. The fractions at this 'cut' are as follows:—

Over 2"	72·20
Over 2"—1"	7·55
Over 1"—1/2"	2·48
Over 1/2"—1/4"	1·63
Over 1/4"—1/8"	1·21
Over 1/8"—30 mesh	1·43
Thro' 30 mesh	0·58
Total	87·08

The average ash in the raw coal delivered from the mine was 18·23 per cent. and the average ash of the coal delivered from the Washing Plant at the 'cut' of 1·5 sp. gr. is 14·8 per cent.

5. With "Heavy Liquid Separation" it is not essential to dry out the coal in all cases after washing but in some instances it is perhaps advisable to do so. At the Broken Hill Proprietary

Co's Collieries in Australia they have a Pneumatic drier but provision has not been made for this in our designs so far since it has not been recommended by the manufacturers. If the auxiliary process of "Froth Flotation" is later adopted for washing the fines to a lower ash percentage, then a drying plant will be necessary. If the auxiliary process of "Pneumatic" cleaning of the dust is adopted, a drying plant will not be necessary.

6. As far as our enquiries have gone, the same type of plant will be applicable to all our seams with shaly and clay bands and rough grained coal containing high ash percentages. It must be understood that each individual seam must be judged on its own physical and chemical properties and the results of the test on one seam alone are not applicable to another seam without detailed test. So far we have proved that our 16 seam, Jorapukur seam, and 14 seam in the Jamadoba area are applicable to this means of cleaning and also our 16 seam top and 16 seam bottom Sijua and 13 seam Sijua. It is dangerous to generalise since the physical and chemical properties of the seams vary so largely within horizontal as well as the vertical distance and it is essential for each individual area to be cautiously investigated on its own merits.

7. The "Chance" Sand Washing Plant has been found to be applicable for the West Bokaro Colliery proposition. It has also been found applicable for the seams of Tata's Collieries mentioned above.

8. It may lead to confusion if the cost of washing is not estimated on the basis of the "Float and Sink" tables. First of all it has to be determined what ash percentage is required and if this can be obtained with an economical factor of — rejections from the run of mine products. The point at which the washing 'cut' is made will determine the overall cost. The costs mentioned in para. (c) of my reply to Question No. 1 are applicable for the 'cuts' as made at the particular colliery in England and Africa. It is not known if the cut at which we shall operate will be the same as adopted in other countries. The figures of cost given in para. (c) of my reply to Qn. 1 can only be a basis and the ultimate cost in India will depend on the point at which the washing 'cut' is to be made. It can be taken however that at the cut mentioned in my reply to Question No. 4 to give 87·08 clean coal on 14·8 per cent. ash from Digwadih 16 seam, the cost will approximate to six annas per ton. As a contrast I may mention that hand conditioning of the coal

Digwadih is costing 100 per cent. more than this at the present time. This includes the wages of labour, dearness allowance, attendance bonus and higher capital charges for housing etc. etc.

9. The quoted price for the West Bokaro Colliery Plant was as follow:—

	Rs.
Washer	5,38,720
Elec. Equipment	49,050
Building	2,06,027
	<hr/> 7,93,797
Erection of 453 tons steel	92,600
Freight	13,590
	<hr/> 1,06,190
	<hr/> 8,99,987

*Not printed.

The capacity of this plant is for 2,000 tons per day. The Jamadoba and Digwadih Plants are practically similar. It is not known what a plant for 500 tons per day would cost. This would greatly depend on the location and other circumstances. The plants are manufactured in standard sizes and the cost being according to the capacity of the washing cones. It can be taken however that when all the variable factors are taken into consideration the cost would not be proportionately less than that for the 2,000 tons plant.

GENERAL COMMENTS

(1) I have under enquiry at the moment a quotation for the smallest size "Chance" plant on behalf of the Fuel Research Committee. This will be governed by the minimum size of standard cone which Fraser & Chalmers manufacture for this type of washing. I understand that they can reduce their minimum standardised cone to give a washing capacity of 100 tons a day in 8 hours. This plant is intended for large scale testing of coal from all sources. A small commercial scale plant on the "Rheolaveur" principle was constructed at Jamadoba Workshop and installed a few years ago at Nos. 6 & 7 Pits for washing tests on slack coal. The tests indicated that the results to be achieved would be no more satisfactory than those obtained by earlier investigators on the "Froth Flotation" system and the work was discontinued. The range of coals tested was very limited and the failure to achieve successful results must not be taken to be generally applicable to all Indian coals. It merely proved that the coals tested could be more satisfactorily cleaned by the "Heavy Liquid Separation" process. The small commercial scale plant obtained in 1938 from England and used by Tatas is, as far as I know, the first introduced to India and I believe still the only one available in the country. I also believe the small "Rheolaveur" plant constructed by us at Jamadoba was the first and only one of its kind to be installed for experimental use.

(2) I wish to draw the Committee's attention to some popular misconceptions of coal cleaning in India. Ash is reputedly largely inherent. This is foreign material in close physical and chemical combination with the coal substances. There is no known method for its removal except possibly by chemical means. Coal cleaning is essentially a physical process and hence the failure of the Industry to draw the right conclusions from the results of early research workers. Free ash in the form of shaly and clay bands is not in intimate combination with the coal substance and hence can be removed by a physical operation. Coarse grained bands of coal inherently high in ash can also be removed by a physical process of cleaning but in doing so the coal in combination is also removed. This is the substance which gives rise to a "middlings" product in "Heavy Liquid Separation" and which can be utilised for steam raising purposes. From the amount of work already accomplished by us it is not likely that the free ash in any seam capable of being removed economically will exceed on the average more than 6% and the inherent ash not at all.

If a "middling" product is produced this is likely to run from 20% to 25% in ash. If the rejection to the dump has to be kept within limits, a certain amount of "middlings" will be essential. If the ash can be brought down below 15% in the primary product the chief advantage is in consistency and regularity for every ton of coal despatched for making metallurgical coke. For special processes where an exceptionally low ash coal is required and where expense is no deterrent the cleaned coal can, with some seams, be subjected to a secondary cleaning process other than by "Heavy Liquid Separation" and the ash brought down to a very low factor. The middlings and rejections to the dump in this event would be exceedingly high and result in very high cost of production.

REPLY DATED 31ST MAY 1946, FROM DR. C. FORRESTER, PRINCIPAL INDIAN SCHOOL OF MINES, DHANBAD.

1. No. The washability is not, as a matter of fact, determined primarily by the original ash content of the coal. It depends more upon the extent to which portions of the coal contain a low ash, the remainder having a correspondingly high ash. If the ash of the high ash coal is uniformly distributed such fine crushing is necessary that washing is out of the question. Some coals with say 25 % of ash have given very promising results. Others with only 20% of ash have proved failures. It is, therefore, unwise to generalise on this precise point. I have tested about 20 coals containing over 30% of ash. Eleven taken at random (the average ash content of which was 32.55%) gave an average production of only 46% of "clean coal" containing 19.7% of ash. One, with 32% of ash, gave 58% of "clean coal" with 13.5% of ash. None of these results would, at the present time, be considered economic propositions.

I am inclined to think, from the result obtained so far, that a raw coal ash of about 23% would be safer to take as the poorest quality coal to treat. That would not, of course, rule out special instances of higher ash coals giving better results, owing to the physical nature of the coal giving an "abnormally" good result. Taking 16% of ash as being a reasonable figure for the clean coal to be produced, I find that coals containing about 23% of ash give from 60% to 78% of 16% ash coal. That is a figure that might be taken for the purpose of calculating reserves of coking coal. Of course, as further progress is achieved in both washing and blending a lower clean production figure and or a high clean coal ash content figure might be feasible. I give the above figures for the present purpose.

2. The high ash coals (say from 10 seam downwards) should in my opinion be either crushed to about 1" prior to washing or screened to remove all below 2" (or in some cases below 1") prior to washing the smalls. Here also a generalisation would be unwise. If the oversize already has a market without washing it is obvious that it would not be washed unless considerable financial gain were to result.

But if a general policy of washing all "metallurgical" coal is to be pursued then crushing, as above suggested, to 2" or 1" (according to the results of the washability test in each case) would be advisable. It should be noted that the natural smalls respond better to washing than do fines produced by further mechanical crushing. The latter contain a high percentage in the smallest sizes than do the same sizes of the natural smalls. And further crushing adds to the amount of very fine material, which entails serious slurry problems.

By whatever process washing will be achieved, the removal of fines below say 1/16" is necessary prior to washing. These, when naturally produced, frequently have a very low ash and need not be treated. When artificially or mechanically produced by further crushing they tend to have a higher ash (due to crushing of "shale") and would in a large proportion of cases have to be rejected.

3. No. Crushing to dust is not favoured by coke manufacturers. 1/4 inch slack is probably the best average size of coking. 1/2-inch slack may often be suitable without further crushing and some coke oven managers favour crushing to 1/8-inch. But dust is objectionable for various technical reasons. This is a matter of opinion requiring further discussion, but I do not think there is any doubt about it being undesirable to crush to dust. That is necessary, however, if a vacuum cleaning process is to be used, but the clean dust would be used for other purposes, as well as for mixing in with other clean smalls.

4. I have not determined the percentages in question. But they would, I think be approximately the same as those of the original unwashed coal with perhaps a tendency for higher percentages of the large sizes to appear in the rejections, so that the percentages of smaller sizes in the clean coals would, I think, be on the whole higher than in the raw coal.

5. Yes. That is one reason why de-dusting prior to washing is such an important feature of washery practice. I have no figures regarding moisture percentage aimed at. Coke oven managers prefer to have a small percentage of moisture in coking slack and of course a small percentage is also found an advantage for firing boilers but the amounts are very small indeed— of the order of one per cent.

6. I personally favour the adoption of a washer of the heavy liquid specific gravity type, which deals with all sizes at one time. If it is adopted then the answer to the question is "yes". But I think there may be a case for using a washer of the Rheolaveur type in combination with the other heavy liquid type, but that is a matter of economics, especially in respect of water supply and treatment of fines. On the whole the coals of the Bokaro and Jharia fields are all of the same general chemical and physical type, in respect of cleaning characteristics.

7. As above stated (para. 6) I favour a washer of the heavy liquid type, e.g. the Chance washer.

No chemicals are used. These washers use suspensions of mineral grains in water, the minerals being sand, barytes, magnetite, loess (fine wind-blown dust or soil) or other readily available mineral. The Chance washer uses sand.

8 and 9. The cost of washing is generally calculated on the tonnage of "input". The cost per ton of clean coal produced can be calculated therefrom after reference to the washability curves or table of washability results, which vary from coal to coal. Figures relating to operating costs are, unfortunately, only those in respect of plants in operation abroad. I have information regarding the cost of a Chance washer handling 100 tons per hour. This would cost about £40,000 to £50,000 and the operating cost is stated to be about 6d. per ton of input, calculated on British rates of pay etc. but not including capital charges. Nearly all the companies making these plants fight shy at present of giving any figures of cost, owing to rapid fluctuations caused by the war. A combined Tromp (magnetite) heavy liquid and Rheolaveur washer is stated to cost about £75,000 and the operating cost is stated to be a little over one shilling per ton of input. (Input about 150 tons per hour.)

The position in respect of capital cost and operating charges is most satisfactory from the point of view of India's coal industry. Perhaps other experts approached with this questionnaire have more reliable information.

LETTER NO 0764, DATED 24TH APRIL 1946,
FROM THE INDIAN IRON & STEEL CO., LTD.,
12 MISSION ROW, CALCUTTA.

INDIAN COALFIELDS COMMITTEE

Bye-product installations in existing coke ovens

In regard to your No. 14 (8)ICC/46, dated the 16th instant we have to state as follows:—

1. *Crude Tar* is recovered and despatched as such to Distillers for further processing. We do not distil Tar locally.

2. *Ammonia*.—Full recovery of Ammonia is effected as Sulphate of Ammonia. The Sulphate conforms to the requirements of British Standards.

3. *Naphthalene*.—On the direct recover system this was recovered from the Gas Mains and was processed into Naphthalene Balls. There is very little demand for these at the present time. On semi direct recovery, such as existed at the Kulti Plant, and will exist on the new plant at Hirapur, the Naphthalene will be mainly included in the Tar and recovered by distillation at the Distillers' Works.

4. *Benzol and Toluene*.—Government-owned plants exist at both Hirapur and Kulti. The crude benzol recovered at Kulti is sent to Hirapur for rectification, and the rectified product is disposed of either as Toluene or as Motor Spirit according to instructions from Government.

LETTER No. 218/BP/1982, DATED THE 20TH APRIL 1946, FROM THE COLLIERY SUPERINTENDENT, STATE RAILWAYS COAL DEPARTMENT, GIRIDIH, P.O.

Bye-product installations in existing coke ovens

With reference to your No. 14(8)ICC/46 dated 16th April, 1946, I beg to give the following particulars:

The Coke Plant consists of 50 Simon Carves Regenerative Ovens.

Crude Coal Tar is obtained and sold as such.

Sulphate of Ammonia is produced and the sulphate plant is capable of dealing with the full capacity of the ovens.

There is a Benzol plant for producing motor spirit but it is only a small one and its rated capacity is for 37,000 gallons per year.

LETTER No. ICC/H.C. DATED THE 1ST MAY 1946 FROM M/S BIRD & Co., MANAGING AGENTS, THE BURRAKUR COAL CO. LTD., CHARTERED BANK BLDGS., CALCUTTA.

Bye-product installations in existing coke ovens

We write with reference to your letter No. 14(8)/ICC/46 of the 16th April in connection with the above and we give below details of our bye-product installations:—

Loyabad Coke Plant Recovery

(1) *Crude Coal Tar and Ammoniacal Liquor.* The crude coal tar and liquor are recovered by atmospheric and water cooling of the coal gas by atmospheric surface condensers and multitubular water coolers.

Yield—4 to 5 gallons per ton of coal carbonised.

(2) *Neutral Sulphate of Ammonia.*—The plant for the recovery of Sulphate of Ammonia is Koppers semi direct process.

In this process the hot gases freed from tar and containing ammonia vapour, pass through a saturator containing a bath of sulphuric acid in which the ammonia vapour combines with the sulphuric acid and forms Sulphate of Ammonia. To free the Sulphate of Ammonia from the last traces of sulphuric acid the salt is passed through a Phillipsons' Neutralizer.

The yield of Sulphate of Ammonia varies between 18 and 26 lbs. per ton of coal carbonized

The analysis of the salt is approximately:—

Moisture —Nil to trace

Free acid—Trace

Ammonia —25.0 per cent.

Sulphuric acid used for the recovery of this bye-product is manufactured at the Company's own plant Sp. Gr. 1.700.

(3) *Coal Gas.*—Sixty per cent. of the ammonia free gas is utilised for raising steam, the remainder for heating the ovens.

LETTER DATED 9TH MAY 1946 FROM MESSRS. TURNER, MORRISON & Co., LTD., MANAGING AGENTS, LODNA COLLIERY (1920) LTD., CALCUTTA.

Bye-product installations in existing coke ovens

With reference to your letter No. 14 (8)ICC/46 dated 16th ultimo and our letter of 6th instant, we are informed that a consolidated reply was not sent to you by the Secretary, Hard Coke & Bye-Products Producers Association, but that replies have been submitted by other members separately.

Lodna Coke Plant consists of two Batteries, one of which was closed down in 1939 since when Coke has been produced from one Battery only. The monthly production from this Battery is approximately 4,800 tons of coke and 150 tons of Crude Tar. The full output of Tar is delivered to our friends, the Shalimar Tar Products (1935) Limited, whose factory is situated alongside our Coke Plant. When our two Batteries were in operation, the productive capacity was double the above figures, but the present intention is to maintain our present output, keeping one Battery in reserve.

NOTE ON THEIR BYE-PRODUCT INSTALLATION AT KUSUNDA, BIHAR, ETC., FORWARDED BY MESSRS. JARDINE, SKINNER & Co., MANAGING AGENTS, BARAREE COKE Co., LTD., WITH THEIR LETTER DATED THE 15TH MAY 1946.

The Bye-coke industry has reached a high stage of development in India largely owing to the activities of the Bararee Coke Co., Ltd. They were the first to recognise the importance of this subject in relation to Indian industry and provided benzol recovery plant when their coke ovens were built in 1919. In those days creosote oil, a product of tar distillation was required as "Wash Oil" for the recovery of hydrocarbons of the benzene series from coal gas. A tar distillation plant was, therefore also added to the equipment. During the succeeding 25 years the industry of bye-product recovery has greatly developed so that the number of bye-products recovered or manufactured now greatly exceeds the number recovered at coke oven plants in most countries. A medium temperature of carbonisation, say 900 to 1000°C, has proved to be most suitable for the recovery of the most valuable bye-products and on those lines the industry has been developed.

The normal procedure for coking plants is to produce coke as a primary product with coal gas, coal tar, sulphate of ammonia and crude benzol as bye-products and to leave the refining of tar and benzol to larger chemical factories who specialize in this work. As no such factories existed in India, the Bararee Coke Co., Ltd. decided to set up plant to do the refining and manufacture themselves. In that way a new industry has been built up and it is satisfactory to note that it has met with considerable success. That is not to say that there is not further room for development and such is likely to come in the near future.

A list of the products manufactured gives an idea of the scope of work undertaken. Of the first importance is coal tar which, on treatment, yields road tars of various specifications and coal tar pitch. Coal tar being controlled during the war period and there being non-available for painting purposes, demand sprang up for refined coal tar paints and this was met by the manufacture of 'Blakglos' a quick drying glossy paint suitable for steel or for steel or wood.

Creosote oil of various grades are recovered in the process of distillation and these are used as wood preservatives, as absorbing oil for the recovery of benzol, for the manufacture of disinfectants, for the recovery of carbolic, cresylic and other tar acids and also in the manufacture of pyridine bases, largely used as denaturants in making alcohol unsuitable for drinking.

Naphthalene the well known moth exterminator is also recovered and heavy creosote is the source or anthracene which can be readily converted into dye-stuffs. During the war, high grade disinfectants could not be imported so that the manufacture of these products was taken up seriously with the result that Government requirements were amply met from indigenous sources. The value of disinfectants depends on their germicidal value and a Biological Laboratory was set up at the works so that the potency of the disinfectants could be checked during manufacture against B. Typhosus germs and the Rideal Walker Coefficient established and confirmed. Disinfectants, having more than 12 times the germ killing power of pure carbolic acid are regularly manufactured.

Sulphate of Ammonia, the most popular nitrogenous fertiliser in Agriculture is produced at the rate of 28 lbs. per ton of coal carbonised. Organic Solvents: The chief use of commercial benzol in normal times is as a motor spirit mixed with petrol for internal combustion engines but in war time it assumes much greater importance as being the chief source of toluol, the base material from which the high explosive T. N. T. is prepared. The purest toluene can be manufactured in India, as the normal coking coals used contain a very low percentage of sulphur. Demand also exists for benzol, toluol, and xylol (solvent naphtha) as solvents in the paint and varnish trades and these can now be made without importing these products from outside India.

NOTE ON THE BYE-PRODUCT INSTALLATIONS AT JAMSHEDPUR FORWARDED BY MESSRS. THE TATA IRON AND STEEL CO. LTD., 102-A CLIVE STREET, CALCUTTA WITH LETTER NO. COL/321/1759 DATED THE 23RD MAY, 1946.

The Tata Iron and Steel Co. Ltd. at present recover the following Bye-products at their Coke Ovens Dept.

1. Coal Tar
2. Sulphate of Ammonia
3. Coke Oven Gas

4. Motor spirit, Toluene, Solvent Naphtha, Crude Naphthalene, Still bottom sludge at the Benzol Plant.

The gas evolved at the time of carbonisation of coal in the Coke Ovens contains Tar vapour, Ammonia and many other Hydro-carbons of a complex nature. A part of the tar vapour in the hot gas from ovens while passing through mains and coolers, condenses as the temperature falls and the rest is precipitated in the Tar precipitators. Flushing Liquor, ammonia liquor and tar from different points in the process are collected in hot drains, Tar catch tanks etc. from where these are pumped to a separation tank and in this tank tar and ammonia liquor separate out. Tar is then sent to Storage tanks from which it is distributed for various purposes.

The gas stripped of tar is passed through Saturators where ammonia in the gas comes in contact with the Sulphuric Acid and forms Ammonium Sulphate. As this ammonium sulphate is moist it is sent to a Drier and then the material is ready for shipment.

After the gas is freed of tar and ammonia it is put through secondary coolers to bring down the temperature further. From the coolers the gas is passed through Benzol Scrubbers in which wash oil coming in contact with the coke oven gas, absorbs Benzol and Toluene from the gas. From these scrubbers the Benzolised oil is pumped to the Benzol Plant.

The Coke Oven gas is now utilised for heating purposes. Some part of it is used in the Coke ovens for heating the ovens and the rest is sent to the mills and various other plants.

In the Benzol Plant, the benzolised oil after being heated while passing through a heat exchanger and preheater, comes in direct contact with low pressure steam in the Crude Benzol still and is debenzolised. The Benzol vapour from there goes to the dephlegmator, where certain impurities are removed and condensates are sent to the Naphthalene trays where crude Naphthalenes separate out. The debenzolised oil is pumped back to the benzol scrubber. The Benzol vapour from dephlegmator then passes through a series of condensers and separators to eliminate any water left and then goes to the storage tanks.

Crude Benzol from Storage is pumped to the Benzol Washers and treated with H_2SO_4 for removing impurities, and after neutralising it with water and caustic soda solution the product is sent to the rectification plant where the washed crude Benzol is charged into the rectification still and the product is distilled through a fractionating column. Motor Benzol, Toluene, Solvent Naphtha are collected at different temperatures in different storage tanks. Residue left at the bottom of the still is called still bottom and drained into storage.

The following are the essential equipments for recovery of coal tar, sulphate of ammonia and Benzol etc. at the Coke Ovens Department.

Coal Tar & Sulphate of Ammonia

1. 6 Primary coolers to bring down the temperature of the gas.

2. 6 Tar precipitators of the Electric Static type, capable of removing about 99·2% of tar fog.

3. 3 Turbo exhausters—and 3 Boosters.

4. 3 Saturators with preheaters and Centrifugal driers. Here NH₃ of the gas comes in contact with H₂SO₄ in the saturators and forms Ammonium Sulphate.

5. 1 Final Drier—in this the Ammonium Sulphate is dried and is ready for shipment.

6. 3 Ammonium Stills for recovering NH₃ from Ammonia Liquor.

7. 3 Secondary coolers—water and oil circulated. Here the gas is cooled down further.

8. Hot drains and Tar catch tanks etc.—Flushing Liquor, Ammonium Liquor and tar from various points in the process are collected here.

9. Separation tank—Tar and Liquor separate out.

10. Tar Storage, Liquor storage tanks for storage purposes.

11. Cooling Tower for cooling the water.

Benzol Plant

1. Benzol Scrubbers—Here the Wash Oil comes in contact with the Coke Oven Gas and thus absorb Benzol etc.

2. Crude Benzol still—Crude Benzol is recovered here from benzolised oil. To do this it has to pass through oil heat exchanger, preheater, Dephlegmator, Condensers, Separators, etc.

3. Benzol Washers—Crude Benzol is washed here for Rectification plant.

4. Rectification stills, fractioning columns etc. —Washed crude Benzol is charged and subjected to fractional distillation for the recovery of Motor Benzol, Toluene etc.

5. Water Cooling equipments etc.—A forced draft cooling tower.

6. Storage tanks—Storing purpose for various products.

Capacity of the Bye-product plant

Coal Tar	3,700 tons per month
Ammonium Sulphate	1,250 tons per month
Motor Benzol.	92,000 gallons per month
Toluene	18,000 gallons per month

Letter No. ICC/H.C., dated the 1st June 1946 from Messrs. Bird & Co., Chartered Bank Buildings, Calcutta.

Re. Bye-Product Installations in existing Coke Ovens.

With reference to your letter No. 14(8)/ICC/46 of the 27/28th May from New Delhi, we have to advise you as follows :—

1. The maximum output of Coal Tar and Sulphate of Ammonia depends of course on the amount of coal put through the battery.

You might assume that our maximum output of Coal Tar would be 3,000 tons per annum and the maximum output of Sulphate of Ammonia, 1250 tons per annum.

Our outputs for the years 1940 to 1945 are given below :—

	Coal Tar Tons	Sulphate of Ammonia Tons
1940	2487	1073
1941	2377	986
1942	1968	671
1943	1682	528
1944	2146	813
1945	2128	785

In none of these was the battery working to its maximum capacity due to shortage of coal and essential spares to the battery.

2. In regard to the Coal requirements, this has been dealt with by the Hard-Coke Association in reply to your Questionnaire.

In round figures our maximum coal requirements would be 130,000 tons of coal per annum all coal must be coking coal, 12, 13, 14, 15 and 16 seam Jharia coal.

These coals are necessary to produce a good metallurgical coke.

Letter dated 5th June, 1946 from Messrs. Turner, Morison & Co., Ltd. Managing Agents, Lodna Colliery Co. (1920) Ltd., Calcutta.

Re. Bye-Product Installations in existing Coke Ovens

We are in receipt of your letter No. 14(8) ICC/46 of 27th ultimo.

A change of policy in regard to production at Lodna Coke Plant is not contemplated within the next few years, and it is intended that No. 1 Battery will be kept in reserve until such time as No. 2 Battery fails to meet the demand for Coke. The question of extending our Plant in the future is dependent upon the future outlook of the Coke trade in general.

During the next three years, it is anticipated that there will be little change in our present production, and in this event our requirements of coal for coking purposes are likely to be 6000 tons per month. Of this quantity 2000 tons of Selected 'A'. 14A and 15 seam Coal are required for blending with 4000 tons of 11, 12 and 13 seam Coal.

Letter No. 249/BP/2761, dated the 5th June, 1946, from the Colliery Superintendent State Railways Coal Department, B. P. Plant, Giridih P.O.

Re : Bye-product Installation in existing coke Ovens.

Your No. 14(8)/ICC/46 dated 27/28th May 1946.

Regarding above, I give below the required particulars. Sulphate of Ammonia—360 tons. This is limited by size of sulphuric Acid Plant.

Benzol (Motor Spirit)—Guaranteed capacity 37,000 galls. Maximum produced 60,000 gallons.

Tar—Maximum produced 2,000 tons. Production is dependent on quantity of Coal used for coking.

Production during last 5 years :

Sulphate of Ammonia. 1,128 tons
Benzol 1,74,400 gallons
Tar 4,916 tons.

The Sulphate Plant has shut down on occasions during the war as we are unable to obtain Sulphur for producing Sulphuric Acid. The Benzol and Tar were proportionate to the coal used.

(2) According to present production approx. 35,000 tons of coal are used annually but as regards future policy information should be obtained from the Chief Mining Engineer, Railway Board, Calcutta. All the coal used is from our own Collieries which is of good coking quality.

Letter No. MIS/25/46, dated the 12th June, 1946, from the Bhoura Coke Company, 189, Raja Divendra Street, Calcutta.

Subject—Bye-Products installations in existing Coke Ovens.

Statement forwarded with the Indian Iron and Steel Company, Ltds'. letter No. 01162, dated the 15th June 1946 regarding their Bye-Product Installations in existing Coke Ovens.

1. The following are the combined outputs of Hirapur and Kulti bye-products for the past five-years :—

		1941/42	1942/43	1943/44	1944/45	1945/46
S/Ammonia	Tons	8,122	5,406	3,937	5,379	4,447
Tar	Tons	26,275	20,763	17,422	16,736	18,280
Naphthalene	Tons	157	95	73	91	33
Motor Spirit	(Gls.)	..	..	124,519	474,184	448,172
Toluene	(Gls.)	..	..	24,539	118,297	57,804

2. The maximum possible outputs of the combined plants are as follows :—

Sulphate of Ammonia 10,000 tons
Tar 28,000 tons
Naphthalene Balls We will not make this
Motor Spirit 1,60,000 gallons

3. Estimated Coking Coal requirements are as follows :—

1946 and 1947 1,130,000 tons per year
1948- 1949 and 1950 1,400,000 tons per year.

Statement forwarded by Messrs. Jardine, Skinner & Co., Managing Agents, The Bararee Coke Company, Ltd., 4 Clive Street, with their letter, dated the 14th June 1946.

Table showing annual output of Bye-Products.

ACTUAL PRODUCTION						
Outturns	1941	1942	1943	1944	1945	Maximum possible
Coke	72,329 tons	69,556 tons	64,843 tons	63,488 tons	59,116 tons	75,930 tons
Tar	2,658 tons	2,594 tons	2,408 tons	2,299 tons	2,089 tons	2,650 tons
S/Ammonia	1,247 tons	1,216 tons	1,178 tons	1,045 tons	985 tons	1,280 tons.
Benzol	81,766 galls.	64,774 galls.	63,155 galls.	43,805 galls.	34,751 galls.	82,000 galls.
90's Toluol	32,070 galls.	27,360 galls.	32,518 galls.	29,377 galls.	37,507 galls.	37,000 galls.
Cr. Naphtha	18,700 galls.	16,258 galls.	15,556 galls.	14,078 galls.	12,634 galls.	18,000 galls.
Sol. Naphtha	12,286 galls.	11,678 galls.	11,583 galls.	9,149 galls.	7,909 galls.	12,000 galls.
Naphthalene Crude	73 tons	70 tons	55 tons	65 tons	47 tons	75 tons
Middle Oil	39,503 galls.	38,660 galls.	33,227 galls.	35,730 galls.	51,095 galls.	65,000 galls.
Creosote	72,276 galls.	74,142 galls.	78,900 galls.	86,161 galls.	1,14,350 galls.	48,750 galls.
Anthracene	36,325 galls.	40,403 galls.	51,226 galls.	52,586 galls.	50,659 galls.	26,400 galls.
Pitch	1,071 tons	1,214 tons	1,251 tons	1,298 tons	1,495 tons	960 tons
Road Tar	2,089 tons	1,559 tons	1,114 tons	896 tons	245 tons	..
Dis. Fluid	71,880 galls.	34,505 galls.	27,924 galls.	33,695 galls.	1,30,533 galls.	1,62,400 galls.
Black Varnish	942 galls.	1,100 galls.	714 galls.	770 galls.	..	..
Blakglos	..	..	..	1,10,079 galls.	61,000 galls.(1) 1,91,511 galls. (2)	1,37,180 galls.

Annual requirement of coal for coking purposes during the next few years 85,000 to 90,000 tons.

Class of coal required (in order of merit) Jharia No. 14A Seam }
" 15 " }
" 16 " } from the Eastern section of the Jharia field.
" 14 " }
" 13 " }
" 12 " }

Proximate analysis of coal :—

Volatile matter 28.0—24.0%
Fixed carbon 60.0—62.0%
Ash 11.0—14.0%

*White Fluid.

With reference to your letter No. 14(8)/ICC/46 of 28th May 1946, we append below our replies to the questions asked by you :—

1. Maximum annual output of Coal Tar—1900 tons.

2. Actual output of coal tar :—

1941 1685 tons
1942 1683 tons
1943 1856 tons
1944 1445 tons
1945 1514 tons

3. Requirement of Coal—The annual requirement of coking coal at present is approximately 60,000 tons. From 1948, however, we shall need double this quantity, when our second battery (under consideration) comes into operation.

4. Class of Coal suitable for coking.—Generally coals mined from 11, 14 and 15 seams from Jharia Coalfields have been used. These coals are of Selected A and B Grades.

Coals preferably of Selected A grade with good coking property are considered suitable for Bye-Products Plants.

Letter No. Col/321/2083, dated the 19th June 1946, from the Tata Iron and Steel Co., Ltd., 100 Clive Street, Calcutta.

Re Bye-Product installations in existing Coke-Ovens

With reference to your letter No. 14-(8)/ICC/46, dated the 28th May, 1946, I attach a statement giving the productions from the bye-product installations for the last five years. In this connection I would like to explain that due to the bad coal position our Wilputte Coke Ovens

have been closed down from February, 1943 and further that the Simon Carves batteries are also on reduced output. In the case of Toluene and Benzol there is the further factor of the suspension in production imposed by the Director of Ordnance Factories.

With reference to the query made by you as to our requirements of coking coal for the next few years, we would refer you to our answer to question No. 42 of your Questionnaire No. 2 wherein we have stated that our requirements of coking coal for the next five years will be 150,000 tons per month.

Production of the Bye-Product Plant for the last Five Years

	1941-42 Tons/ month	1942-43 Tons/ month	1943-44 Tons/ month	1944-45 Tons/ month	1945-46 Tons/ month
Coal Tar	3680	3370	3300	2870	3313
Sulphate of Ammonia	1350	1170	1180	1030	1124
Toluene Gls.	12000	22410	10450	5660	11420
Detoluated Motor Benzol Gls.	70000	104760	103480	84130	69677

Letter No. CTD/31/11, dated the 19th July, 1946, from the Coal Tar Distilleries Association 20, Strand Road, Calcutta.

herein and that they are therefore not available for the development of new chemical industries.

This Association which represents the major Coal Tar Distillers in this country has noted that certain criticisms were levelled at the present methods employed in the distillation of coal tar in India in the report of the Dyestuffs Exploratory Committee recently issued by the Department of Scientific and Industrial Research, Delhi.

2. A note containing the views of this Association on this subject is enclosed, and it would welcome an investigation thereon by your Committee should you consider that it falls within their terms of reference.

THE COAL TAR DISTILLERS' ASSOCIATION

Note on the Report of the Dyestuffs Exploratory Committee with special reference to the Coal Tar Distillation Industry in India.

In the report of the Dyestuffs Exploratory Committee recently issued by the Department of Scientific and Industrial Research, certain criticisms are levelled at the existing Coal Tar Distillation Industry in India.

Briefly it is contended that the industry has concentrated solely on the production of Road Tars and Creosotes and Tar Paints to the exclusion of basic chemicals in the Coal Tar required for developing an indigenous dyestuffs industry. It is suggested that by adopting unsuitable specifications for Road Tars etc. that these basic chemicals are wastefully included

No actual chemicals are specifically referred to in the report in this connection but it is assumed that the Committee had in mind the production of Naphthalene, Anthracene, Phenol (Carbolic Acid) and Cresols (Cresylic Acid).

None of the members of the Committee are conversant with the detailed activities and production methods of the Coal Tar Distillers and the criticisms referred to above appear to have emanated from a report written in 1942 by Dr. C. Forrester of the Indian School of Mines for the Supply Development Committee, appointed by the M.G.O.

This matter has been brought to Dr. Forrester's notice who was quite unaware that his report had been used in this connection and who admits that it was written with an incomplete appreciation of the true facts, and that he has since very considerably modified the views he expressed therein. He has agreed to address the Dyestuffs Exploratory Committee and draw their attention to the fact that conclusions regarding the Coal Tar Industry drawn from his report are misleading and cannot be substantiated by a full consideration of the true facts.

The criticisms appearing in the Dyestuffs Report are unsound for the reason that the chemical bye-products referred to above are definitely undesirable and objectionable as constituents of Road Tars, Tar Paints and Creosotes. The permissible quantities of Naphthalene and Tar Acids are restricted below certain low maximum limits in most official specifications, in the interests of the quality of the Road Tars, etc.

The Distillers therefore have the double incentive to extract such chemicals (a) to improve this quality of their main products (b) to realise additional revenue from the sale of relatively higher priced chemical products.

During the war Coal Tar Distillers have extracted and refined large quantities of Naphthalene Phenol and Cresylic Acids from Indian Coal Tars and supplied them to meet urgent war needs. Their production is being continued as there exists a general world wide shortage of such products in contrast to pre-war conditions when imports from Japan and the Continent at cut price levels rendered competition definitely uneconomical so far as indigenous production was concerned.

In the case of Anthracene and Carbazole no market at present exists in India but distillers are pursuing research with a view to perfecting methods for their extraction and refining so that they will be available in an acceptable form when the demand of the dyestuffs industry materialises. These two products together form less than 1% by weight of the Crude Coal Tar.

Taking all chemical products obtainable from Crude Coal Tars they do not together comprise more than 7 per cent by weight of any Indian Coal Tar.

It should be made clear that Benzol and Toluol do not occur in and are not distillation products of Indian Coal Tars but are solely products of Coke Oven Gas Recovery Plants, which are the property of and operated on behalf of the Government of India (with the exception of the Recovery Plant of the Bararee Coke Co. at Kasunda). Consequently their recovery and refining does not come within the scope of operations of the Indian Coal Tar Distillers.

The views expressed in the Dyestuffs Exploratory Committee's report that the present Coal Tar Distillation is in a backward state and is run on unscientific lines are quite unjustified.

Further the view is also expressed in this report that as the dyestuff industry will consume the major portion of the products of Coal Tar Distillation the distillation industry will have to be reorganised in order to meet the demands of the dye industry. This view is quite fallacious.

The Coal Tar Distillation Industry must be based primarily on an extensive market for Road Tars, Creosote and Tar Paints. This industry has been developed in India in recent years on sound lines by insistence on a reliable standard of quality its main products which has enabled them to compete successfully with imported products such as Asphaltic Bitumen and has thereby rendered the indigenous production of Naphthalene and Tar Acids and other chemical derivatives possible. In the absence of any demand for the major products, however, extraction of the relatively small yield of chemical products from Indian Coal Tars would cease to be an economical proposition.

139. *Letter from Dr. C. D. Pandey, 77B Theatre Road, Calcutta.*

Subject:—Cost of Pneumatic Sand Stowing and Briquetting of Low-grade Coals.

I am in receipt of your various enquiries in this connection but regret very much that being away from Calcutta I could not compile a note which would have furnished full details. The cost of Pneumatic Sand stowing inclusive of amortisation and interest charges on the plants would be about Rs. 1/2/- per ton assuming the charge of electricity at 9 pies per unit and the cost of 6" Cast Iron Pipes with special flanges at the pre-war level.

I feel sure that if manufacture of Cast Iron Pipes for this purpose is taken in hand on a mass scale basis the cost of Pneumatic Sand Stowing can be cut down to about -/14/- per ton.

So far as the questions of briquetting and low temperature carbonisation plant of low grade coals are concerned, a separate note is being prepared and would be forwarded to your Committee in due course. The advantages of low temperature carbonisation are:

- (1) For every 100 tons of coal treated in the retort we would be getting about 55-60 tons of Soft Coke,
- (2) At least 2-3 gallons of above 90 Octane Benzol per ton of coal so treated,
- (3) At least about 75 per cent of the coal tar would be obtained to serve as a binder to turn the residual soft coke into briquettes,
- (4) In addition to all these products we would be getting about two gallons of crude oils per ton of coal treated which can be distilled into diesel oil or crackled totally.

Obviously considering the cost of the retort and the refinery the production cost of soft coke as well as Benzol would be higher than the market rate of other competitive commodities. But since India is so poor in her petrol resources national interest might demand bearing this extra cost of production.

I have gone through the merits of swallow process of distilling coal wherein 25-30 gallons of petrol per ton of coal treated are claimed as results. The economics of this process would produce high Octane Benzol at about Rs. 3 per gallon. This process claims to convert all the available fixed carbon contents of coal into Benzol partly by hydrogenation and partly by crackling and the residue left behind is a kind of clinker.

140. *'Memorandum of Gasification' received from Dr. C. D. Pandey, 77B Theatre Road, Calcutta.*

UNDERGROUND GASIFICATION OF COAL

Underground gasification of coal is one of the greatest modern technical achievements. A full

realisation of this idea will bring about a revolution in the methods of obtaining fuel, doing away with the necessity for sinking shafts, raising coal to the surface and so on. Coal is converted into high grade fuel while still underground; gas is piped to the surface and delivered direct to the consumer.

The idea of underground gasification was first put forward by the great Russian chemist, Mendeleev who propounded the theory and proved economic value of the process in 1888. Mendeleev repeated his statements on the subject several times—in 1892, 1897 and 1900—but he was never able to realise it. In 1913 a Scottish Chemist, Sir William Ramsay, put forward the same idea and came very close to realizing it. The outbreak of World War I, during the course of which Ramsay died, prevented the experiments from being carried out.

Vladimir Lenin who was, at that time, living abroad in exile—published an article (on May 4, 1913, in the 'Pravda') entitled "One of the greatest technical victories" in which he gave an appreciation of the idea of underground gasification of coal and prophesied a brilliant future for it. It was twenty years, however, before experiments were begun in the Soviet Union on a semi-industrial scale. A special trust called the Podzemgaz was formed to develop the theory of the process and conduct laboratory experiments in 1937, the Goriovka underground gasification station was set up, in February, 1938, this station was already producing gas to heat the boilers of the local coke batteries. By the end of 1938 this station produced about sixty million cubic meters of gas which was, in use, equivalent to almost 20,000 tons of coal. The Goriovka station was followed by others at Lisichansk and the newly opened district of Kurakhovka, both in the Donets basin and in the Moscow coalfield. Several other stations also projected in the east, but the outbreak of World War II held up further development of underground gasification of coal. When the Germans occupied the Donets basin and a part of the Moscow coalfield, they ruthlessly destroyed all the underground gas installations that had been working, so that, when these regions were liberated work had to be begun all over again.

What are the nature and significance of this process is a question that may be asked. Everybody knows that coal is found in seams below the surface of the earth surrounded by non-combustible rock and earth in order to mine coal, the seam has first to be reached by digging through the whole mass which lies above it, only when this has been done can coal be removed. In digging out coal and bringing it to the surface useless earth and rock—"muck" in miners' language—also has to be removed, and, in some coalmines, the percentage of the muck removed is greater than that of coal. Thus, about half of everything dug out of the mine is useless and has to be dumped. Anybody who has been in a mining district has seen tremendous pyramids of rubbish that are visible long before one reaches a colliery.

When coal is converted into gas underground, there is no need to dig out either coal itself or useless muck. Fuel in the form of gas is the most convenient under any circumstances and has distinct advantages even over the finest types of coal. The supply of gas can be easily regulated by simply opening and closing the tap.

This allows of great elasticity in the process of combustion which may be intensified or decreased at will. When coal is used such control is difficult.

The best coal when burnt produces from 10 per cent to 15 per cent of ash and some coal produces as much as 40 per cent. In cases where a large number of boilers are used in modern power-stations, for example, the removal of this ash is an intricate and costly process, involving heavy physical labour under bad conditions. When gas is burnt there is no ash so that there is nothing to remove.

Another important factor, especially in power-station work is the economy that is effected by supplying the exact amount of air required to burn gas. In this way there is a minimum product resulting from combustion of gas. In burning coal even in the best modern boilers, air is supplied in tremendous quantities and the volume of smoke produced is two or three times greater than that from gas. A large amount of heat is dispersed in the air and smoke; stationary boilers lose up to 25 per cent of the generated heat. In this way and locomotives lose as much as 60 per cent. The use of gas reduces this loss to an inevitable technical minimum of 5 to 8 per cent.

In those branches of industry which work exclusively on gas-steel smelting, in open hearth furnaces, glass melting, firing of pottery etc. gas is manufactured in special retorts. This is an expensive process requiring specially selected coal and is accompanied by great loss of fuel.

Underground gasification of coal provides gas ready for use without any further processes. A natural gas generator is created underground which converts low calory or brown coal into a first class and cheap fuel-gas.

The practical use of gas from the experimental station has shown that its cost is about two-fifths of the equivalent amount of coal (in industrial installations the cost would be considerably less). Only a quarter of the number of workers is required as compared with the mining of coal, and the labour involved is much lighter. The time required to start gas installation working is about half that required to sink mine shafts and cut galleries. Furthermore, there is no need of railway transport to carry fuel, as it is easily piped to the consumer. The amount of mechanical and electrical equipment required for underground gasification is about one-sixth by weight of that required for the mining of coal. If only one-third of the amount of coal obtained from the Donets and Moscow coalfields in the pre-war days were converted into gas under-

round there would be saving of 1,500,000 rubles day at the present government standard coal prices.

Now that victory has been won, there is nothing to hinder rapid development of underground gasification in the USSR.

(Reproduced)

APPENDIX

TECHNICAL DATA

Capital Cost.—(medium-sized gasification unit) based on a colliery raising about 30,000 tons of coal per annum.

	Rs.
1. Cost of core drill for boring purposes	25,000
2. Cost of Compressor (single stage) below 100 lbs. pressure	30,000
3. Cost of Casing Pipes 500' at Rs. 8/- per ft.	4,000
4. Cost of Suction pump complete with motor	[15,000
5. Cost of Steel pipes from the Suction pump to the Boiler Shed	30,000
6. Cost of Jet burners	5,000
7. Cost of re-modelling the fire box of the boiler	10,000
8. Cost of sinking bore-holes (two)	5,000
TOTAL Capital Cost	1,30,000

Recurring Cost (Monthly Basis)

1. Labour charges exclusive of Power House Labour 50 people at Rs. 4/- per day	6,000
2. Cover charges at Rs. 50/- per day	1,500
3. Overhead charges (supervision)	2,500
4. Depreciation charges	500
5. Interest charges on capital	300
TOTAL Recurring Cost	10,800

Capacity of the unit about 100 tons of coal per day OR 7,50,000 cft. of gases.

Capacity of the Power Station—2500 K. W.

(Reproduced from my notes.)

141. Letter, dated 3rd July 1946 from Dr. C. D. Pandey, 77B, Theatre Road, Calcutta.

During the course of my oral cross examination on 2nd July 1946, before your Committee I realised that owing to my not having summarised my recommendations and views in the proper order of precedence there was some confusion in the minds of different members of our Committee. My views in this matter are :—

Considered purely on academic merits nationalisation and a Central Marketing Board with the functions of the Coal Grading Board affiliated or subordinated to it would be ideal solutions. I have my own doubts if the mentality of the Indian public and economic development of the country have reached such a stage of evolution where nationalisation can be effected. Failing this, to my mind, the next best solution would be (1) to demarcate the coal-bearing area and (2) to sub-divide coal-bearing area into diverse units of production directly connected with various units of consumption. Such units would be (a) Steel and Iron industries (b) Railway locomotives (c) Industrial enterprises, e.g., Mills and Foundries, (d) Power House and (e) General Public. In order to see that there is an equitable distribution various remedies and checks proposed by me can effectively be adopted. Even if this expedience is considered to be unfeasible, the present system of control should be co-ordinated and enhanced by the creation of (a) marketing board, (b) expanding the powers of the Coal Grading Board and (c) by conceding more statutory powers to the Coal Commissioner.

I hope this summary would clarify the ideas I tried to convey to your Committee in my replies. Of course, this is a skeleton scheme and if any one of them is accepted by your Committee as a whole, I would be prepared to work out its details if so desired.

142. Letter dated 6th August 1946 from Dr. C. D. Pandey, 77B, Theatre Road, Calcutta.

I hope that you must have received my notes on Pneumatic Sand Stowing and Gasification of Mines. You must have noticed that in my note on Pneumatic Sand Stowing the cost of obtaining and screening the stowing material has not been included. It would depend on *ad hoc* circumstances. The main feature of Pneumatic Sand Stowing process is the utilisation of waste materials near the pit bank. As such the cost will vary from colliery to colliery, but I feel, that in no case, should it exceed Rs. 4,000 per month for a unit for which details have been appended with my note.

Partly owing to postal strike and partly on account of my being away to Shillong, there has been some delay in sending this note to you on Low Temperature Carbonisation, Hydrogenation and Swallow Process. With the chance of postal strike coming to an end, I am making all haste to send this note to you.

I hope this will prove of some interest to you

Notes sent in by Dr. C. D. Pandey (referred to in his letter dated 6th August, 1946.)

THE PETROLEUM INDUSTRY

Chapter I.

(A) Position in regard to the Natural Oil Supplies of the world.

The proved supplies of petroleum which for all practical purposes the only source of oil field and lubricating oil, are very unevenly distributed geographically. During recent years just over 80 per cent. of the World's production has been obtained from three countries, U.S.A. with 60 per cent. Russia with 11 per cent. and Venezuela with about 9 per cent. There are only seven countries with a production in excess of 5 million tons per annum and out of the total world production of 245 million tons in 1936, the seven countries accounted for 226 million tons. A table showing world production of crude oil is given in appendix attached hereto.

(B) Importance of Oil.

World production of crude petroleum has increased during the last forty years from 20 million tons in 1900 to about 245 million tons in 1936.

The United States of America is spending over twelve million dollars per annum on research to find new uses for petroleum. There are over two thousand products being made from petroleum such as drugs, salves, anesthetics, perfumes, plastics, paints, insecticides, etc., etc.

In India during recent years, with development of modern industries, the demand for petroleum has increased considerably which can readily be shown by the figures taken from the Customs returns for the last three years and given in Appendix 2 attached hereto.

India not being a country producing oil or petroleum to any appreciable extent has to import all her national requirements from foreign countries, chiefly from Burma, Bahrein the Dutch East Indies, and the United States. Efforts have been made in the past in this country to tap the natural resources of oil but they have been unfruitful so far thus leaving India still dependent upon foreign supplies, a somewhat unhappy position if the present world situation continues. Moreover, due to the existing conditions a great impetus has been given to the industrial development of this vast country which will undoubtedly lead to a large increase in the demand for petroleum and its various by-products.

OIL FROM COAL INDUSTRY

Chapter II.

The importance of oil in the national economy of all the leading countries is very great, and with the exception of U. S. A., and Russia, all have to depend upon foreign sources for their oil supplies; hence great effort has been devoted to the production of oil from coal, especially in Europe.

(a) Efforts made in Germany.

In Germany the latest figures show a production of $4\frac{1}{2}$ million tons per annum but the figure has recently been very largely increased. The German Government is aiming at complete self sufficiency within a period of five years. An article regarding the oil from coal industry in Germany, published in the 'Times of India' in their issue dated 8th October, 1940, is attached hereto as Appendix 3.

(b) Efforts made in England.

In England progress has been very much slower due to the traditional outlook of the British Government. Nevertheless, at the present time very serious consideration is being given to the production of Home-Produced Motor Spirit and several Government Committees have been set up to inquire into every possible means of increasing home production to a maximum as soon as possible. There are two main methods of production in England at the present time viz 'The Low Temperature Carbonization Process' which produces a smokeless fuel with petrol as by product, and the 'Hydrogenation Process' which has for its main purpose the production of petrol and certain by-products.

As an encouragement to the various companies engaging in this industry, the British Government in July, 1933 announced their intention of introducing legislation to give a guaranteed preference on Home-produced Motor Spirits, and accordingly in 1934 legislation was passed which remitted the standard rate of excise duty on petrol for all home-produced petroleum for a period of twelve years.

(c) Efforts made in India.

It is understood that some years ago the Indian Government was prepared to encourage the production of oil from coal, and approached some prominent industrialists in this country to obtain their views as to the feasibility of establishing the industry here with their help. The project, however, was not further developed at that time due to the fears of the industrialists as to the competition from the oil companies and uncertainty as to the various oil processes. Since that time, however, the industry of production of oil from coal has made great strides and to-day as can be seen from the German and English figures of production, it is highly important industry.

(d) Efforts made in Australia.

Recently the Australian Government has fully realised the importance of this necessary industry though natural oil supply could be obtained from very near her viz., the Dutch East Indies.

To give an impetus to this industry in Australia, the Australian Government by their letter dated 25th November, 1940, No. 45519 has given a guaranteed preference of 7:4 D gallon for all Motor Spirits produced in Australia.

from Australian coal, over imported Petrol. This preference is guaranteed for fifteen years.

BENEFITS TO BE DERIVED FROM OIL FROM COAL.

Chapter III.

(1) The complete disorganization of a country cut off from its sources of petroleum supply can most readily be realised. The production of oil from coal makes each country independent for its petrol supplies and the production can be controlled according to the requirements of the country.

(2) With Home produced petroleum, the entire capital invested in the industry remains within the country which is a great economic advantage.

(3) From a strategic standpoint the advantages are outstanding as natural petroleum has to be stored at various large ports. In India for example, Karachi, Madras, Bombay, Port Okha, and Calcutta are the ports where petrol is stored. These large storage installations, apart from being notoriously vulnerable from the air thereby dangerous, are also very inconveniently situated for the distribution of oil throughout India. As far as oil from coal is concerned, it is proposed to erect small manufacturing units all over India at places where the raw materials could be conveniently obtained. This dispersal of manufacturing units, apart from being safe from aerial attacks, also solves the transport problem. Moreover, in the event of hostilities, if any port is cut off from the rest the part so cut off can obtain its supplies from its nearest unit or units.

Although it is true that the nearest natural supplies can be obtained from Bahrein and Burma, the present exigencies of war lead to a shortage of shipping. It would be a great help if *ALL* tank shipping is made available for supplies to the War Front. For this reason alone, if for not other reasons, it is desirable that India should find its own requirements of Petroleum and Oil within the Country. It is of course not hoped that the total Indian requirements of Petroleum could be met by this new Industry but it would certainly ameliorate the existing position, when it is rumoured that oil and petroleum are rationed.

(4) As synthetic petroleum is manufactured from lignite coal and oil shales all of which are readily obtainable in India it is possible ultimately to make self supporting for its supplies of oil.

(5) From an economic standpoint there is much to be said for the manufacture of oil from coal as it develops the coal-fields of India and provides employment and utilizes a natural product which hitherto has not been exploited to anything like its economic limit. Just to illustrate to what extent it is possible to utilize the coal fields of India when the Industry for the manufacture of oil from coal is developed, each plant capable of producing 2,400 gallons of oil per day would consume approximately 100 tons of coal per day or 28000 tons of coal per year.

To deal with approximately 8 to 10 per cent. of India's petrol requirements would mean the installation of ten such plants in which case the consumption of coal would be about two hundred and eighty thousand tons per annum.

(6) In India the petrol obtained is usually fifty-six octanes whereas the petrol obtained by synthetic process is expected to be 70 octanes. (These results are taken from the existing plants in England). This would enable Car owners to take advantage of high compression engines. The spark can be fully advanced for the maximum power and economy without "Knock" or "ping" i.e. the car would give extra mileage.

(7) Petroleum being a substance of such vital necessity it would not be speculating to state that in many more ways than are possible to put on paper, the country or territory where it is produced is bound to progress and many small industries are bound to spring up around the district. So many instances can be quoted where, entirely due to the discovery of petroleum, a whole industrial City has sprung up.

SWALLOW PROCESSES FOR THE PRODUCTION OF OIL FROM COAL.

Before we actually come to explain the SWALLOW PROCESS of coal distillation, it is advisable to explain the various distillation processes and their commercial utility.

The two main processes at present in operation in England are :

- (1) The Low Temperature Carbonization.
- (2) Hydrogenation.

We shall explain each in turn.

(1) *The Low Temperature Carbonization Process.*

In this process coal of a suitable grade (coking coal) is carbonized at temperature ranging from 550°C to 700°C. The main product of this process, however, is a semi-coke which is suitable for burning as a smokeless fuel in domestic grates. The yield of motor spirit is purely a by-product along with tar, gas, etc.

Products of Low Temperature Carbonization.

Low Temperature coke provides a good fuel with valuable smokeless and radiating properties particularly suitable for domestic and on this account many people advocate a wide extension of the use of fuel of this class in order to improve the atmospheric condition of large towns.

Certain Low temperature cokes are suitable for use in gas producers for motor vehicle propulsion.

Motor Spirit.

The quantity of refined motor spirit produced by Low Temperature Carbonization is about two to three gallons per ton of coal. (A further one and a half gallon can be obtained from the tar).

Tar.—The yield of tar may be as high as 18 to 20 gallons per ton of coal treated. From this tar, as has been mentioned above one and a half gallons of motor spirit can be obtained by distil-

lation. The remainder of the tar may be utilised in three ways :

(1) It may be consumed as a heavy boiler fuel.

(2) It may be distilled until pitch is yielded. By this method ten and half gallons of light fuel oil and eighty pounds of pitch are obtained. The light fuel oil so produced is not by itself suitable for diesel oil, but can be made so by adding pro-knock compound. Light Tar produced by Low Temperature Carbonization contains a higher proportion of tar acids than tar produced by high temperature processes, and there is gradually widening market for this class of products.

(3) It may be treated by Hydrogenation and will then produce from 14 to 15 gallons of motor spirit.

Gas.—The quantity and quality of gas produced by low temperature carbonization vary greatly according to the method used. With certain types of the process, very large quantities of gas of low calorific value are produced which are difficult to dispose of. In most cases the gas is not sold, but is used in the process to heat the retorts. In the case of those processes producing a high calorific value gas it must be observed that if the gas companies were to purchase it would save them buying oil for enrichment purposes, as it would be possible by using the low temperature gas, to make up any deficiency in the calorific value of their own gas at present secured by the addition of carburetted water gas.

Low temperature gas of a high calorific value could also be used when compressed, in motor vehicles, and it is claimed that a larger mileage per unit volume of gas could be obtained than with town's gas. A further claim for low temperature gas is that it can be liquified to the extent of over one-third of its quantity and sold in containers for domestic and industrial uses.

Yields of oil products.—As already pointed out the oil produced is a by-product and while there is some variation in the yields of liquid products obtained from different processes, evidence has led to the conclusion that the extent of variation does not represent more than a few gallons per ton. Accordingly there is not a single process which should have any special consideration on account of the quantity of oil products obtained.

In England the Sub-Committee on oil from coal in 1938 took evidence from low temperature distiller association, the President of which is also the Chairman of the Low Temperature Carbonization Co. Ltd. He explained in his evidence that it is not the primary object of the Low Temperature Carbonization to produce oil. But he suggested that a large scale development of the industry would result in a substantial contribution being made to the country's oil requirements.

(The foregoing is the Report of the Sub-Committee on Oil from Coal Cmd. 5665).

The yield of tar in most of the low temperature carbonization method which have been tried out on a semi-commercial scale is about three quarters as much gain per ton of coal carbonised as

produced at Gas Works and Coke ovens ; and it is agreed that it is rather more amenable for the production of oil fuels than high temperature tar. The evidence received indicated however that the creosote fraction of high temperature tar which amounts to about 40% of that tar, is equally, if not more, suitable than low temperature tar for the Hydrogenation process.

The whole success of the above process depends entirely on a ready market for the main product namely coke.

For this reason the process is commercially possible in England owing to a large demand for this low temperature coke which provides a good fuel with valuable smokeless and radiating properties particularly suitable for domestic purposes. Notwithstanding this, however, due to certain inherent difficulties notably seasonal demand for coke and the formation of large quantities of tar the profits have not been what were anticipated.

(2) Hydrogenation Process.

The hydrogenation process differs fundamentally from the process (1) just described, in that the sole object of this method when treating coal is the production of oil. No important products are obtained which complete with coal or its by-products such as a coke or gas.

In England a plant owned by the Imperial Chemical Industries is in operation in Billingham. Commercial possibilities of Hydrogenation is handicapped by the enormous initial cost of the original plant and the high recurring expenses which on the last available figure averaged 11 ds per gallon.

The figures for both the above processes are as follows :

LOW TEMPERATURE

Crude Spirit yield	. 3 Gallons per ton of coal.
Tar	„ . 16 gallons per ton of coal.
Coke	„ . 15 cwts. per ton of coal.

HYDROGENATION

Cost of plant	. £8,000,000
Crude Spirit yield	. 30 gallons per ton of coal.
Cost of spirit yield per gallon.	11½ d.

Processes allied to Hydrogenation have been very largely exploited in Germany and it is estimated that about two thirds of the petrol requirements of that country are supplied from synthetic oil plants. Here again the disadvantages for ordinary commercial enterprises are the enormous capital expenditure for the necessary plant and the high cost of production. These disadvantages however do not weigh with the German Government against the manifest advantage of Germany being self-supporting in regard to supplies of motor fuel.

Thus we see from the above that the chief features of the low temperature carbonization process as far as production of motor spirit is concerned are the low yield of motor spirits and the necessity of a ready market for its principal namely coke.

The disadvantage of the Hydrogenation Process is that an enormous capital of £ 8,000,000 or nearly Rs. 110,000,000 is needed for the plant alone.

The Swallow distillation process *differs very materially* from both the low temperature carbonization and the Hydrogenation processes. The Chief disadvantages are as follows:—

(a) Owing to the simplification of the process the cost of necessary plant for any given production is very much less.

(b) The yield of motor spirits per ton of coal is fully equivalent to, if not more than, the best Hydrogenation processes and the cost of production per gallon is less than half than the cost of hydrogenation.

(c) The Swallow process converts the coal into a semi-coke together with crude motor spirits and these products are produced *without the formation of any tar* which is the most important point of difference.

EXPLANATION OF THE SWALLOW DISTILLATION PROCESS

By this patent process, on distilling a finely divided mixture of coal and fuel oil, under certain conditions oil is produced free from tars and directly as motor spirit and diesel oil.

Coal is delivered from wagons to a sunk coal hopper and fed by Conveyor to a Crusher, where it is broken to pass through 3/8 inch mesh then elevated to one of four 50 ton crushed coal Bunkers. A regulated feed passes the coal to an air swept Ball-Mill where it is pulverised and air carried to two cyclone separators. The first provides the processing coal which is fed through a timed Feeder to a mixing Tank. The second cyclone provides the fuel for the various burners in the Furnaces. Fuel oil suitable characteristics is mixed by weight in a certain proportion with the coal dust in the mixture. This is pumped at a regular rate through the Tubular Heater or Tube still and brought upto the desired temperature at which, part of the distillation has taken place and the water vapourised. The semi-cooked mixture then passes into a Rotary Retort where the process is completed. The vapourised oil from the coal passes from the Retort to No. 1 Condenser which is maintained at a temperature to condense the main portion of the Fuel Oil which is returned to the Stock Oil Tank. The light oil and steam pass forward to No. 2 Condenser where they are condensed and water separated. The gas passes through the Scrubber and very little permanent gas is made.

The process is so balanced that *no tars are made*. The Light Oil is separated into Petrol and Diesel and so regulated that the total yield of Diesel and Petrol is the number of gallons obtained per

ton of coal thus maintaining the original volume of the Stock Oil which can be used over and over again.

The residue coke or coke dust is the only by-product and is delivered to the Bunker.

In England the coal process was the Welbeck Kitchens Coal which produced 27 gallons of motor spirit. With regard to the Indian Coal samples taken from the Bengal Coalfields had been tested out in England and have shown yield of about 28 gallons per ton of coal, which include High Speed Diesel Oil. Australian coal similarly tested showed a yield of 36 gallons per ton of coal. In general it may be stated that on all suitable coal a yield of 1 gallon of Crude Motor spirit may be expected for each percent of volatile content of the coal. Thus coal showing 30% volatiles will when treated by the Swallow Process produce approximately 30 gallons of Crude Motor Spirit per ton of coal processed.

PROPOSED SCHEME FOR EXPLOITATION OF SWALLOW PROCESS FOR DISTILLATION OF OIL FROM COAL IN HIS EXALTED HIGHNESS THE NIZAM'S DOMINIONS.

As will be seen from the explanation of the Swallow Process, the Swallow Process differs materially from both the Low Temperature Carbonization and the Hydrogenation Processes, and furthermore combines the good—qualities of both these Processes which makes the Swallow Process more beneficial commercially, for instance whereas the Hydrogenation Process entails a large outlay of capital to produce say 20 gallons of oil per ton of coal, the Swallow Process produces the same high amount of oil from coal without a large outlay of capital for its plant. Similarly whereas the Low Temperature Carbonization produces a large amount of Tar and Pitch and a smaller amount of Petroleum this process produces a large amount of Petroleum and practically no Tar and Pitch.

Cost submitted to the Government of India in the Commerce Department based on Bengal coal.

Page Five

CHAPTER IV

THE COST OF PRODUCTION.

The estimate has been based on the plant working 300 days (of 24 hours) in a year. The plant to be situated near a Colliery:

Capital invested on plant	Rs. 8,50,000
Capital invested on building	Rs. 1,00,000
Capital invested in tools and Vans	Rs. 50,000
TOTAL	Rs. 10,00,000

The above would be an economical plant processing 4 tons of coal per hour and working continuously for 24 hours a day for 300 days in a year.

The Coal processed would be 24x4x300	28,800 Tons.
Oil processed 12 gallons for H. S. D. per ton.	3,45,600 Gallons.
Oil processed 12 gallons of Petrol per ton of coal.	3,45,600 "
The Coke yield being 15 cwt. per ton of coal used	21,600 tons.

Cost of Production

Coal used for processing 28,800 tons @ Rs. 5/- per ton	1,44,000
Transport of coal @ As. 4 per ton per mile	7,200
Cost of Labour 150 men in three shifts @ Re. 1/- per man	45,000
C/Over	1,96,200

COST PER GALLON OF PETROL AND HIGH SPEED DIESEL OIL

	Rs.
Cost of Production	2,68,600
Cost of Overheads	1,03,000
	3,71,600

Thus cost of production per gallon of oil (i.e. petrol and High Speed Diesel) is Rs. 0-8-7-2. To which the following overheads are to be added:—

Royalty	Rs. 0 2 0
Agents Commission	Rs. 0 2 0
Leakage and Evaporation	Rs. 0 1 0
Provincial sales tax Appr.	Rs. 0 1 0
Total cost per gallon of oil	Rs. 0 15 7-2

If sold at Rs. 1-9-6 per gallon of petrol, a profit of annas ten per gallon is made on the sale of petrol. Therefore the profit on the total yield of 3,45,600 gallons is Rs. 2,16,000.

If sold at Rs. 0-13-0 per gallon of H.S.D a loss of annas 2-7-2 is made on the sale of H.S.D. Therefore the loss on the total yield of 3,45,600 gals. is Rs. 58,752.

Thus the total gross profits are Rs. 1,57,258.

(N.B.—It must be noted here that the profit is made *only* if no duty other than the sales duty not exceeding 2 annas is levied).

NOTE.—It must be observed here that this cost of production of Rs. 0-8-7-2 per gallon of Oil (i.e. petrol and H.S.D.) or Rs. 0-11-2-4 per gallon of petrol and Rs. 0-6-0 per gallon of H.S.D. (If we are to carry the loss made as above on H.S.D. on the profits made on Petrol), is based upon a pilot plant crashings 4 tons of coal per hour. If however, when the industry develops and public confidence is obtained and a full size plant of 10 tons per hour capacity is put up the cost of production of Oil (i.e. petrol and H.S.D.) would be Rs. 0-4-10 per gallon, i.e. Rs. 0-4-10 per gallon of petrol and Rs. 0-4-10 per gallon of H.S.D. The reason for this is that the heavy overhead cost per unit of oil is reduced by higher yield of petroleum products.

Please refer Appendix III.

APPENDIX I
WORLD PRODUCTION OF CRUDE OIL
(Quantities in millions of statute tons)

Country	1937 Jan-June		1936		1935		1934		1933	
	Production	Percentage of total	Production	Percentage of total	Production	Percentage of total	Production	Percentage of total	Production	Percentage of total
United States	83.6	62.6	149.1	60.6	134.4	59.6	122.4	59.1	122.1	62.2
Russia	13.5	10.1	27.0	11.0	24.7	11.0	23.8	11.5	21.1	10.7
Venezuela	12.1	9.1	22.7	9.3	21.6	9.6	19.8	9.6	17.4	8.8
Rumania	3.6	2.7	8.6	3.5	8.3	3.7	8.3	4.1	7.3	3.7
Iran (Persia)	4.5	3.4	8.2	3.3	7.5	3.3	7.5	3.6	7.1	3.6
D. East Indies	3.4	2.5	6.1	2.5	6.0	2.7	6.0	2.9	5.2	2.7
Mexico	3.3	2.5	5.5	2.2	6.0	2.6	5.6	2.7	5.0	2.6
Iraq	2.1	1.6	4.0	1.6	3.7	1.6	1.0	0.5	0.1	0.1
Columbia	1.4	1.0	2.6	1.1	2.4	1.1	2.4	1.2	1.8	0.9
Peru	1.1	0.8	2.4	1.0	2.4	1.1	2.3	1.1	1.8	0.9
Argentina	1.0	0.7	2.2	0.9	2.0	0.9	2.0	1.0	1.9	1.0
Other countries	4.0	3.0	7.0	3.0	6.3	2.8	6.0	2.8	5.6	2.8
TOTAL	133.6	100	244.5	100	225.3	100	207.1	100	196.4	100
British Empire	2.7	2.0	4.8	1.9	4.1	1.8	3.8	1.8	3.4	1.7

Included in other countries above.

APPENDIX II

Amount in Rupees of Kerosene and Oil imported into British India During the last three years.

Commodity	1937/38	1938/39	1939/40
Kerosene	7,62,14,135	6,45,66,213	7,51,24,185
Other kind of Mineral Oils	9,83,30,490	8,21,74,232	9,61,36,706

NOTE.—These figures have been obtained from the Government of India Publication, Delhi, No. 3689 being the accounts relating to sea-borne trade and navigation of British India.

APPENDIX III

The Cost of Production of a full size plant.

The full size plant would process 10 tons of coal per hour and will work continuously for 24 hours a day for 300 days in a year.

The following estimate is made on that basis :—

Capital invested on plant	Rs. 12,00,000
Capital invested in building	1,00,000
Capital invested in tools and vans	50,000
Total	13,50,000

The coal processed would be 24 × 10 × 300	72,000 tons.
Oil processed 12 gals. of HSD. per ton of coal.	8,64,000 gals.
Oil processed 12 gals. of petrol	8,54,000 gals.
Coke yield being 15 cwts. per ton.	54,000 tons.

Cost of Production.

Coal used for processing 72,000 tons @ Rs. 5/-	Rs. 3,60,000
Transport of coal at 4 as. per. ton mile	18,000
Cost of labour 225 men for three shifts @ Re. 1/- per man	67,500
Supervision. Nine Overseers @ Rs. 100/- p.m.	10,800
Manager @ Rs. 2,000/- p.m.	24,000
Cost of heating coal	40,000
Cost of power and water	40,000

Repairs and Renewals @ 1% on Capital	13,500
Miscellaneous @ 2 as. per ton of coal processed	9,000

Less amount realised for coke @ Rs. 2/- per ton	5,93,600
	1,08,000
TOTAL	4,85,600

Overheads.

Depreciation on plant at 10% on Rs. 12,00,000	1,20,000
Depreciation on Building at 2 % Rs. 1,00,000	2,000
Depreciation on Tools and Vans at 20% on Rs. 50,000	10,000
TOTAL	1,32,000

Interest on working Capital at 6 % on Rs. 2,00,000	12,000
TOTAL	1,44,000

Total cost of Production and Overheads is Rs.	6,29,600
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Therefore the Cost of Production per gallon of oil is annas 4 and pies 10 only.

INFORMATION RECEIVED FROM
OUR OIL COMPANY

The growth of the Furnace Oil business in India is reflected in the following :—

ALL COMPANIES TRADE
FURNACE OIL (INTERNAL).

Expressed in Tons.

	Calcutta	Madras	East Coast	Bombay	Karachi	West Coast	Total
1939	8842.99	12891.68	21734.67	167617.02	47493.46	215110.48	236845.15
1940	12704.01	13139.38	25843.39	171628.68	57289.60	228918.28	254761.67
1941	21180.77	12676.87	33857.64	220586.64	53207.07	273793.52	307651.16
1942	15896.16	13624.66	29520.82	230222.81	52603.58	282826.39	312347.21
1943	15721.58	15005.69	30727.25	241049.64	34303.41	275353.05	306080.30
1944	21491.78	13697.73	35189.51	251829.09	46806.45	298635.54	333825.05
1945	25579.48	32930.49	58509.97	314219.34	86370.72	400590.06	459100.03

(ALL COMPANIES) BUNKER DIESEL & FUEL (COMBINED)

1939	14941.02	29828.60	44769.62	80290.25	3358.42	83648.67	128418.29
1940	22042.85	17252.62	39295.47	118205.26	18294.67	136499.93	175795.40
1941	25954.56	25842.44	51797.00	155393.98	26283.18	181677.16	233474.16
1942	21450.72	32955.73	54406.45	324082.44	93589.32	417671.76	472078.21
1943	16117.36	18633.15	34750.51	284714.17	59387.91	344102.08	378852.59

BUNKER FUEL

1944	52190.76	90188.58	142379.34	166769.96	121630.68	288400.64	430779.98
1945	132835.95	178686.89	311522.84	274233.77	99120.79	373354.56	684877.40

We have no breakdown of the bunker figures as between diesel and furnace prior to January 1st, 1944 but it is safe to assume that only a negligible amount of bunker diesel is included in the "Bunker Diesel and Fuel (Combined)" figures for 1939 to 1943.

Owing to the growing shortfall between indigenous coal production and coal requirements for metallurgical purposes we are expecting an expansion in the internal furnace oil outlet in India.

In the past the Indian furnace oil market, although relatively large, was confined chiefly to the main ports and to factories within easy reach by rail/road of the oil industry's main port terminals.

Now in an expanding market, demand is spreading further a field and springing up in relatively remote places, as is indicated in the list of potential customers to be developed, or now being developed, as listed below:

Name of customers.	Estimate of Annual Business
Customers in Karachi territory	118,980
Customers in Bombay territory	386,000
Customers in Madras territory	72,600
Customers in Travancore State	45,000
Customers in Calcutta territory	98,500

LETTER NO. MISC. 16 D/o "CB" DATED 19-7-46
FROM MESSRS. BURMAH-SHELL OIL STORAGE
& DISTRIBUTING CO. OF INDIA, LTD., BOMBAY.

In the course of our discussion with your Committee yesterday, you said you would like to receive lists of concerns at present using coal who might advantageously turn over to oil.

BOMBAY AREA :

It appears that in Bombay City and the area adjacent Furnace Oil at the present time is a cheaper proposition than coal. In our opinion the area where this state of affairs now exists is roughly bounded by a line drawn through Poona, Nasik and Surat. All coal consumers within that area, including of course Bombay City, could convert now to Furnace Oil and obtain an immediate financial advantage. In actual fact, the large majority have already converted, and in Bombay City there has been a steady changeover from coal to Furnace Oil every year since 1917. There are, however, still a few large coal consumers.

At Poona, industrial undertakings are now discussing conversion and in our view are likely to turn over in the near future.

At Nasik there is the Government distillery which is still operated on coal; consumption is perhaps 200 tons per month.

On the line from Bombay to Surat, industrial undertakings at Billimora already converted.

There are mills at Navsari and Surat which probably use about 1800 tons of coal per month.

The B. B. & C. I. Railway are operating entirely on coal, with the exception of the electrified suburban line. As Railways have their own freight rates for Railway stores, it is somewhat difficult for us to state to what extent the B. B. & C. I. Railway could with advantage convert to Furnace Oil, but we submit that there are definite grounds for assuming that Furnace Oil would be a paying proposition for the B. B. & C. I. Railway as far as Ahmedabad, Rutlam and Amalner.

Finally, in regard to Bombay City, the Port Trust are still considerable consumers of coal, although their consumption has probably been reduced to some extent by the use of oil-fired steam tugs instead of coal-fired tugs. We understand that coal is used in their pumping plants and also in the locomotives. The Port Trust, we believe, are proposing to operate their pumping plants with electricity, but they are proposing to continue to use coal in the locomotives. It is probable that the consumption is about 900 tons per month.

AHMEDABAD :

I hope we have left you in no doubt that we are keen sellers to the Ahmedabad Mills. It is plain, however, that, at existing comparative rates of railway freight and customs duty, Furnace Oil can only be sold in this market so long as coal is not freely available for it. The resultant uncertainty of continued offtake makes it difficult to contemplate a pipeline project at very heavy cost, but the provision of additional tank wagons is not subject to this disability. It, however, the result of your Committee's investigation is that Ahmedabad cannot expect coal to be available for a period of years (say 10 years or more) than it would be worthwhile for the economics of a pipeline to be investigated in detail in comparison with tankwagon delivery.

OKHA AREA :

We explained that in Kathiawar there are a number of industrial undertakings which could now use Furnace Oil with financial advantage if the oil companies were permitted to land supplies without restrictions. Burmah-Shell now hold stocks of Furnace Oil at their installation at Okha. These stocks were put down to cover the requirement of the Cement Works at Dwarka. Conversion has been delayed until February 1947 on account of the non-arrival of certain essential equipment which the Cement Companies are obtaining from America. The

estimated monthly consumption of furnace oil is 4,300 tons. The continued supply of Furnace oil from Okha to this plant depends on a revision of the agreement between Baroda State and the Government of India in connection with the imports of petroleum products into Okha Port. This agreement is temporarily suspended, but may be reimposed at any time at the discretion of the Government of India.

There are other industrial concerns in Kathiawar, cotton mills, chemical works, cement works, etc., which might convert to Furnace Oil if restrictions on imports did not prevent us or other Companies from offering supplies. Estimated requirements of Furnace Oil might be of the nature of 6,000 tons per month.

The Nawanagar State is developing a new harbour at Sika. A new Cement Works is now under construction and the promoters are making enquiries in connection with supplies of Furnace Oil. A natural development would be the construction of tanks at Sika and direct importation at that port. This would entail, presumably, a special agreement between the Nawanagar State and the Government of India. Offtake is estimated at 3500 tons per month.

The Kathiawar Railways might also convert from coal to Furnace Oil. You will have actual figure of their coal consumption and therefore are in a better position than we are to estimate their consumption of Furnace Oil on the 2:1 ratio. Our estimate is 2600 tons per month.

KARACHI :

At the present time Furnace Oil, in our opinion, is an economic proposition up to and including Hyderabad.

The N.W.R. are the biggest users of Furnace Oil, their consumption being about 7,000 tons per month. They also use over 100,000 tons of coal p.m. over that part of the line where the use of oil is ruled out on economic grounds, freight charges becoming heavier as the distance from Karachi increases.

The Dalmia Cement Works propose to change over to Furnace Oil as soon as equipment is installed, their estimated consumption being about 4500 tons p.m.

The Hyderabad Electric Supply Co., use about 1000 tons of coal per month and there is a good case for conversion.

The Bikaner State Railways are considering conversion of their locos from coal to oil.

MADRAS :

Our Madras office will be getting in touch with your Committee and I hope that they will have an opportunity of giving you at first hand their views on conversion in Southern India. In addition to Madras itself we have an installation at Ernakulam on the West Coast.

Meantime I give below a few brief comment on possible conversions from coal to oil in the

Madras area, but our Madras office will be able to give you up-to-date and detailed information.

The South Indian Railway are in process of converting their locos to oil, their current consumption being about 1600 tons p.m. and their potential consumption some 10,000 tons p.m.

The Buckingham and Carnatic Mills are proposing to change over from coal to oil, their estimated consumption being 2,600 tons per month.

Madras Electric Supply Corporation could readily use oil instead of coal, their estimated consumption being in the neighbourhood of 3,000 tons p.m.

The cotton mills at Madura, Ambasamudram and Tuticorin, if converted to oil, would consume some 1,800 tons p.m.

The M. & S. M. Railway are perhaps the biggest consumers of coal in Southern India.

We are also discussing with Dalmia's the possibility of converting their Cement Works at Dalmia puram from coal to oil.

May I take this opportunity to thank you and your colleagues for the considerate hearing which you gave us yesterday. I hope you will let us know if we can be of any further assistance to your Committee at any later stage of your investigation.

145. MEMORANDUM ON THE DISTILLATION OF COAL—ITS NATIONAL ASPECTS BY MR. P. MUKHERJEE, C/O ASSAM BENIGAL CEMENT COMPANY, 7, WELLESLEY PLACE, CALCUTTA.

I am not proposing to inflict upon you a mass of technical data relative to the carbonisation or processing of coal, nor to weary you with a detailed account of the vagaries of hydro-carbon molecules when subjected to various forms of treatment. I would rather attempt to explain, as I see them, the main factors that surround the whole question of the more scientific utilisation of coal, to deal a little more closely with some of the main technical and economic problems involved, and leave you to form your own judgment as to the wisdom or otherwise of the new developments with which we are now confronted.

In the first place, it may perhaps be advisable to examine for one moment the relationship between coal and the community. The extent of the apathy that exists in the minds of the general public on this pre-eminently vital matter is most remarkable. Even those who use coal in their own homes seldom appreciate the service that coal gives them every moment of the day. For example, on waking in the morning one of the first acts is usually to switch on the electric light—coal. Tea or hot water is forthcoming—coal. A bath and if warm—coal again. The clothes one puts on are spun and woven by coal and probably finished with dyes made from coal. The newspaper at breakfast is made and printed by coal, and in the majority of cases coal again is the source of heat that cooks your

breakfast and coal converted into power takes you to your daily work. Think over it for yourselves as you go through the day and you will discover that almost every phase of your activities is rendered possible by coal, either in its original form or when converted into power, light or heat. And at night when you return home the whole process will be repeated, and you will find that almost everything about you that you see or handle has achieved its final shape and usefulness with the aid of coal.

The community, therefore, exists on coal. It is bewildering to contemplate what we should do without it, the mining industry could hold the public to ransom and it is therefore all the more sad to think that for a many years this industry has been conducted and worked in such manner as to be equally unsatisfactory to both owners and workers alike. If only a small proportion of the vast sums of money expended by the public on wholly unnecessary things was transferred to the coal industry and its workers, via the media of better prices for heat, light and power, the country might be very much better off.

That brings us to the next stage—is there any other use to which coal can be put? We now go back about 250 million years and see Nature with its infinite wisdom and genius laying down immense deposits of coal-to-be, so that mankind on its arrival might increase and multiply on a vast scale, and be provided with the ordered comfort and well-being that on the whole is ours today. Had it not been for this provision and provision very few of us would have been here. But Nature never did things by halves, it was not content that these vast stores should comprise fuel only, but packed into their composition hundreds of other valuable materials so essential to our needs. I can imagine no more pathetic sight than Nature looking down and seeing mankind burning up this illimitable wealth merely as fuel alone, and thus destroying the heritage so wonderfully provided for so many of our manifold requirements. It is like chopping up the lid of a grand piano for firewood, a somewhat exaggerated simile perhaps, but it will serve to illustrate my meaning.

It must also be borne in mind that these immense deposits were created when the radiant heat of the sun was much greater than it is today, and in our coal we have imprisoned the results of a radiant energy which can never more be ours.

Happily, however, there are signs indicating that the end of this epoch of waste in the history of coal is at hand and all over the world we see efforts being made, and on a large scale, to utilise the wealth imprisoned in coal in a more economic and scientific manner. During the past ten years great progress has been made in the U. K. in the following directions:—

- (1) Continued expansion and increased efficiency of gas works and coking ovens and other processes based upon high temperature carbonisation.

- (2) The birth and success of the Fischer-Tropsch process whereby coal is wholly converted into petrol, Diesel oil and other valuable products.
- (3) The establishment of low temperature carbonisation as a practical and economic means of further utilising and up-grading bituminous and other coals, and obtaining oil and petrol therefrom in the process.

With regard to the carbonisation of coal at what are termed high temperatures, this old and established industry has done well. In the gas section there has been increased throughput and improved efficiency and more value than ever is being obtained from a ton of coal. Various new types of coke ovens have been developed for the production of metallurgical and other cokes, and the liquid products of all these coals have been utilised with ever increasing usefulness and profit. The production of the valuable motor spirit, benzol, has been much increased and other distillates are now being passed on for conversion into petrol by hydrogenation to the extent of many millions of gallons per year. In addition, the phenols have provided some of the essential material for the new plastics industry which will before long assume enormous proportions. We have further witnessed the gas from many of these coke ovens being passed into a grid system whereby large areas have been supplied with heat, light and power at a very low price. What is loosely termed high temperature carbonisation is the pioneer process for the more scientific utilisation of coal, and today it still remains the chief method, at all events in the tonnage of coal treated.

The second process I mentioned, namely, the Fischer-Tropsch, breaks new ground entirely and is of considerable interest and importance. Coal is first converted into coke; this is heated and steam is passed through it in very much the same manner as in an ordinary water gas plant. The resultant carbon monoxide and hydrogen is then automatically balanced into a mixture in the proportion of two to one and freed from inorganic and organic sulphur. It is then passed into the final reaction chamber where, under a pressure of less than 200 pounds per square inch and with aid of a cobalt-thorium catalyst, it is converted into liquid products of great purity. The respective yields of petrol and Diesel oil can be varied at will according to requirements and the products are truly synthetic. The petrol has a low anti-knock value by itself, but the Diesel oil is probably the best in the world. This process should be of interest to the countries, which possesses vast reserves of unused coal but practically no oil. As in the case of hydrogenation, the cost is high, but is being reduced, and it is still far too early to hazard a guess as to what the ultimate figure will be.

The third process, that of low temperature carbonisation, enjoys the distinction of being the only completely British process in the group and its inception and successful development have been carried out entirely by British engineers.

By this process coal is distilled at temperatures of 500/600° C., about half those employed in high temperature results in a complete change in the quantity and composition of the resultant products. The yield from a ton of bituminous small coal is approximately as follows:

Domestic smokeless fuel	. 14 cwt.
Crude Coal oil	. 18 gallons
Aviation Petrol	. 3 gallons
Rich Gas	. 30 therms

plus a small quantity of ammonia and other products in the liquor of distillation. The smokeless fuel is unique for radiation efficiency and general suitability for domestic use, especially for the open fire. There are also other uses for this type of coke. It has been found possible to use this fuel for the portable gas producers which are used on motor transport vehicles in lieu of petrol. A large number of these vehicles are in operation abroad. Experiments have also been carried out for some time past in England with satisfactory results and it is expected that material progress will have been made.

Other and most unexpected uses are being found for low temperature coke. For example, Messrs. Krupps have discovered that low temperature coke can, with advantage, replace high temperature coke and even charcoal in the manufacture of ferro-silicon. The ferro-silicon made with low temperature coke showed a considerably lower aluminium content, which has to be low in ferro-silicon, and the higher reactivity of the coke also reduced the wear of the carbon electrodes. The power consumption was reduced, thus allowing an increase of output. Whereas, according to the experience of the works with high temperature coke, the silicon content cannot be increased beyond 77 per cent. without adding charcoal or oil cake; when using low temperature coke low in ash, it is possible to increase the silicon content to 90 per cent. and more. Messrs. Krupps have also expressed the opinion that it would even be possible to produce pure silicon with low temperature coke alone. In Germany they have already arranged for supplies of low temperature coke *low in ash*.

Experiments are also being carried out in other directions, and there is a distinct possibility that quite a large market may be established for fuel of this character in fields quite outside the ordinary domestic market.

The whole of the crude oil obtained in the process can be converted by hydrogenation into an equal volume of petrol or it can be distilled and split up into a number of products. The first step is to divide the oil into four parts, light middle, heavy oil and pitch. From the light oil can be obtained a small quantity of motor, spirit (additional to the three gallons per ton of coal scrubbed from the gas) and a small amount of distillate in the naphtha class. The middle and heavy oils provide fuel oil, creosote and raw material for the chemical industry. The pitch is used mainly as a binder for briquettes, and it can also be hardened and ground down.

for use as pulverised fuel, or distilled further to pitch coke suitable for electric carbons and other purposes. All three fractions of oil are rich in tar acids, the usual content being about 40 per cent.

The tar acids when separated from the distillate after refining the remaining neutral oil becomes suitable for Diesel engines.

The tar acids in one form or another are exported all over the world. They are used for sheep dips in Australia and New Zealand, and as a spray for coffee in Brazil, rubber in the Malay States, and apples in Kent. They form the basis for disinfectants, insecticides and germicidal products on a large scale, and are even exported to America where they are used as a means for separating metallic copper from the crushed ore. They have great value in commerce and medicine, and to burn them in the fire is really an economic outrage of the first order.

It has also been discovered, mainly due to the efforts of Sir Gilbert Morgan and his staff at Teddington, that some of the cresylic acids obtained by the low temperature carbonisation of coal are suitable for the manufacture of Bakelite and material such as Tufnol, and as the plastics industry will need largely increased quantities of these acids, their advent is most fortunate.

The creosote fraction is used for preserving railways sleepers and timber generally.

The petrol is mainly extracted from the gas. It has a high anti-knock value ; is very volatile and is eminently suitable for high compression, high performance engines.

Another interesting possibility is the combination of the low temperature and Fischer-Tropsch processes. The low temperature coke is very suitable for the production of the gas required for the Fischer process, and a coking plant working either to make smokeless fuel or Fischer coke can be more elastic. For example, when less domestic coke is needed and more petrol, the output of the combined plant can be arranged accordingly. Further, the petrol from the low temperature side of the plant can be used for raising the anti-knock value of the Fischer petrol, and the Fischer Diesel oil can be blended with the Diesel oil from the low temperature plant, thereby greatly improving the starting properties of the latter.

Again, the rich gas from the low temperature carbonisation process can be put through the Fischer plant with increased profit.

Taking everything into consideration, therefore, we have arrived at a very complex stage in the history of coal. On the one hand it is just as, if not more, important to the community than ever it was. It is also essential that the cost of production be kept as low as possible but, on the other hand, we see large markets being lost, probably for ever, and it is fairly obvious that some additional means must be found for utilising coal. Simultaneously, we have reached a position here oil has become of great and increasing importance as a source of energy, and its use is bound to increase.

Here therefore we have the position where at least three things are simultaneously and badly needed :

- (a) Fresh uses for coal.
 - (b) Some means of utilising coal so that its inherent value may be more adequately realised.
 - (c) Increasing supplies of home-produced oil
- The methods for the carbonising and processing of coal such as I have briefly described, enable the whole of these three to be solved together problems and, incidentally, one or two other problems are solved at the same time.

It should also be remembered that the production of oil by the process of low temperature carbonisation can never be termed non-economic, as the production of smokeless fuel, with the accompanying liquid products, has been carried on for several years past at a satisfactory profit. I think you will see, therefore, that the whole question of the more scientific utilisation of coal is one of the greatest possible national importance.

THE IMPORTANCE OF THE FUEL INDUSTRY IN POST-WAR RECONSTRUCTION

In India particularly in all the cities, large towns of industrial areas the domestic smoke, which is produced by the burning of raw coal and almost half burnt coal known as "soft coke" causes serious danger to health and damage to property.

The United Kingdom Statistical evidence shows a close relation between the death rate and the atmospheric conditions ; the number of deaths from pulmonary and cardiac diseases is shown to increase in direct proportion to an increased intensity and duration of smoke fogs.

In the city of Calcutta alone the medical authorities should have no hesitation to agree with my general view that many deaths are due to this atmospheric condition created by continuous use of smoky fuels.

The carbonisation of coal at low temperatures is the only process to produce smokeless domestic fuels. The fuels are excellent and have a high thermal efficiency, and their use on a wider scale would do much to alleviate the smoke evil. The usage of smokeless domestic fuel has the following advantages :

- (1) The atmosphere of the towns and industrial districts could be made smokeless. The saving on the present cost, in labour and in money, of maintaining cleanliness would be very great. The effect upon the health of the people, upon their temperament and outlook, upon the arts of architecture and sculpture, and the amenities of the towns generally, could not fail to be large and wholly beneficial.
- (2) The country would obtain from its own soil a considerable supply of oil for use in internal combustion engines and

other purposes for which natural oil are now imported. This would offer a measure of security against the possibility that the world's supplies of natural oil may fall short of demand, with a consequent excessive rise in price. It would render this country to a large extent independent of imported oil supplies.

- (3) As the process enables small and other low grade coal to be used more profitably than now, this would be proportionate gain to both mine-owners and miners.
- (4) As the total value of the constituents obtained, after deducting the cost of the process showed a balance above the value of the raw coal, the wealth of the country should be increased to that extent.

At present in Bengal and Bihar coal fields with restricted output 69,000 tons of so-called domestic soft coke are produced every month and it is estimated that at normal time this monthly production would increase to 1,20,000 tons. The present method of manufacturing soft coke is rather crude and it is nothing but half burnt raw coal with very high ash contents.

The smokeless fuel which can be produced by low carbonisation process should be welcome in this country when the same is developed and one of the methods by which the State could most effectively promote these developments would be to offer to the producers of smokeless fuels an assured market, so soon as the production had been established on a commercial scale and a fuel was provided that possessed a heating value not less in relation to its price than that of the coals now bought. Such a market could be found at all events at the outset, in the Government's own purchase.

Should it be found, that through reluctance on the part of the public to modify old methods—the smoke-producing coal, although not appreciably cheaper than smoke-less fuel, was still used in considerable quantities, the Government and legislatures are expected to take appropriate action to stop usage of half burnt fuel. This might conceivably be done either by prohibition or other suitable method.

Petrol, Diesel oil and other liquid fuels are obtained in the process on a commercial scale and it is interesting to note that, at the present moment, many hundreds of thousands of gallons of petrol and Diesel oil made from coal by low temperature carbonisation process.

In addition, other liquid products are released, such as cresylics for the plastics and disinfectant industries, flotation reagents for mining, and other products, many of which are in active demand for export.

Most of the material required in the construction of refineries can be obtained in this country and modern plants can operate on almost any grade of crude oil and produce up to 97 gallons of finished refined products from 100 gallons of crude oil.

It is interesting to note that in France in 1929 the crude oil imports were only 5.6 per cent of the total as against 85.8 per cent in 1938, and the importation of refined products fell during the same period from 94 per cent to 14 per cent.

In Italy also in the same nine years the crude oil imports increased from 4.6 per cent to 57.6 per cent of the whole.

These are most striking figures indicating clearly what enormous strides have been made in the refining industries in those countries in the last ten years.

Another advantage in having own refineries is due to the fact that the products provide the raw material in the shape of gases and intermediate products for high octane petrol, toluene and many other valuable chemical products, and this utilisation or refinery by-products has become in the U.S.A. a most important and profitable business.

LIQUID FUEL FROM COAL OBTAINED BY LOW TEMPERATURE CARBONISATION.

Bituminous coking coals are heated at temperatures below 600° C for four hours, and the volatile matter which is driven off is condensed and collected. The amount driven off depends on the volatile content of the coal, the temperature to which it is heated, and the time it is subjected to the heat.

One method of carrying out the process on a commercial scale is as follows :

The gaseous and liquid products evolved from the coal charge in the retorts, pass, *via* the water-cooled offtakes, into the hydraulic main, where most of the heavier hydro-carbon vapours and a large quantity of the ammonia liquor are condensed. The oil and the ammonia liquor condensed pass through tar towers situated at the end of each hydraulic main, the object of the towers being to keep the hydraulic main free from deposits of heavier tarry matter. From the towers the crude oil and liquor pass to a decanting tank, where separation of oil and liquor takes place so effectively that the crude oil passing to storage contains less than 3 per cent. of water.

The gas and uncondensed liquid products leave the hydraulic main at a temperature of about 85° C., and pass direct to electrostatic tar precipitators, the function of which is now well known. The tar or oil in the gas is precipitated from the gas due to the action of an electrical discharge of 50,000 volts D.C.

The gas leaves the precipitator free from visible oil particles.

On leaving the precipitator the gas passes through steam heaters, the object being to heat up the gas to prevent condensation of light oil vapour in the sulphuric acid washers, into which the gas now goes forward.

The washers are in the form of a section of fractionating column with trays and bubble caps. There are three trays in each absorber, and the gas bubbles through the caps, which are sealed in

sulphuric acid. The ammonium sulphate solution as formed is passed to evaporators, where the sulphate of ammonia crystals are deposited. The crystals are separated, dried, neutralised and weighed into sacks.

The gas leave the acid washers at 80° C. and enters the water-cooled condensers, which it leaves at a temperature of 20° C. All liquid products which are condensed from the gas up to this point are transferred to the aforementioned decanting tank.

From the condenser exit the gas is passed through the exhausters and on to a final cooler, where the temperature of the gas is further decreased, to about 11° C., in order to obtain maximum efficiency in the crude spirit extraction plant which follows.

The gas passes up two scrubbers in series packed with wooden grids, down which is a selected fraction of coal-oil distillate is circulated. The oil fraction extracts the crude spirit vapour from the gas, and from the oil the spirit is recovered by steam distillation, the oil being cooled and used again for further extraction in the scrubbers.

On leaving the scrubbers the gas passes to a gas-holder, from which it is returned to the plant for heating the retorts and for other process work requiring supplies of gas. The yield per ton of coal is about 18 to 20 gallons per ton—that is from ordinary bituminous coal having a volatile content of about 30 per cent. and leaving the residual fuel with about 10 per cent of volatiles.

A typical weight balance is as follows:—

	Cwt./ton	Yield of
Coal oil	2.00	10.00
Liquor	2.15	10.75
Gas	1.85	9.25
Residual fuel	14.00	70.00
	20.00	100.00

The yield of crude spirit from the gas is slightly in excess of 3 gallons per ton of coal.

The hydrocarbons of low-temperature crude oil are more closely related to petroleum than to the hydrocarbons of high temperature tar, and confirming this, it may be pointed out.

1. That the low specific gravity of the lower-boiling hydrocarbons indicates a high hydrogen content, agreeing in this respect with petroleum.

2. That the paraffin was of the high-boiling portions of low temperature tar is found in petroleum but not in high temperature tar which contains anthracene instead.

3. That low temperature crude contains no recoverable naphthalene, and only in isolated cases does petroleum contain naphthalene.

Low temperature crude contains a much higher percentage of phenolic bodies (generally known as tar acids) than does high-temperature tar. It was at one time considered that these were more or less valueless, on account of the

absence of true phenol and the fact that they consisted chiefly of the type known as high-boiling tar acids together with some cresylic acid.

It is now true, however, that these tar acids are in great demand, particularly for the manufacture of commercial disinfectants. Such tar acids have a very high germicidal value, and, made up in the form of commercial products, are being exported to every part of the world.

The nature of the crude oil is largely dictated by the coal from which it is made, and the temperature to which it is heated, and the same factors determine the quality and burning properties of the coke.

The question of temperature control is most important, and heat must be maintained within very fine limits. Recording pyrometers are installed with each retort, and the temperatures are taken both at the top and the bottom. It is also important to maintain, as far as possible, uniform coal specifications, as differences give rise to variations in the products, which may have to conform to strict contract specifications over long periods.

PART II.

During my short stay in the United Kingdom, necessary preliminary investigations have been made to enable me to prepare the above report.

Facilities were obtained to inspect some of the factories operating in that country and particulars were available to discuss with expert engineers, such as Simon Carves etc. to explore the possibilities of drawing up an estimate.

It was, however, found impossible to make up a detailed estimate of the proposed plant to be installed in this country within such short period, as most of these plants could be fabricated in India and the experts in U.K. had no date about the prices of materials in this country. I have, however, been able to collect the actual pre-war cost of one of such installation, as well as estimated value of such plant prevailed during the year 1939. I therefore attach herewith schedule (a) showing the estimated cost of Eight 40 Retort Battery Carbonising Plant based on English prices of the year 1939.

The total price of the Carbonising Plant without land, steam raising and gas producing plant as well as electrical generation, is estimated at £. 341,083-0-0 against the actual cost of an installation carried out during 1939 consisting of eight batteries of 36 retorts Carbonising plant at a value of £330,388-0-0

I also attach herewith schedule (b) showing estimated cost of refinery for 1,000 tons a day carbonising plant, based on English prices of 1939.

Thus the summary of the prices would be as follows:

	£
Carbonising plant	341,083
Refinery	220,929
Generating station	30,000
Effluent disposal	6,000
	<u>598,012</u>

The above sum is the estimated cost for 500 ton per day carbonising plant with a refinery having a capacity of 1,000 tons. In the event of the carbonising plant being decided for a capacity of 1,000 tons of coal per day the difference is £ 2,40,000. Although it was difficult for the British Engineers to forecast what would be the price of a Similar plant in their country but nevertheless they did not anticipate any increase beyond a maximum of 50 per cent. of the pre-war cost. Basing on that my personal opinion is that over 70 per cent. of the plant could be fabricated as well as manufactured in this country. If an optimistic view is taken it may just be possible to complete the plant in this country at the same cost as the estimated cost of England in pre-war days. I do not intend that my view should be shared by others and, therefore, to be on the safe side, I would suggest an increase of 25 per cent. as a safety margin ; thus the estimated cost would be :

Land, building etc.	747,515
Cost of 3 or 4 collieries	100,000
Contingency 5 per cent.	4,738
	<hr/> £952,253

I therefore propose that a Company should be formed with a capital of 2 crores which would provide sufficient working capital after meeting the cost of the plant.

The Low Temperature Carbonisation Limited of England, who claim the "Coalite" carbonisation process are regarded to be the foremost pioneers in low carbonisation and distillation and I have been fortunate to come in close touch with this Firm whose Chairman and Directors were exceedingly kind and sympathetic as well as anxious to help India towards installation of such plant. I am personally grateful to Col. W. A. Bristow, M.I.E.E., M.I.A.E., F.R.Ae.S., Chairman and Managing Director of the Company who is regarded as the authority in England in fuel research and who has more or less dedicated his life to solve economical process of low temperature carbonising. I am proud to mention that as a result of 17 years research carried out by Col. W. A. Bristow with the help of his associate Directors and various scientists and technical experts he ultimately produced a correct design of Retort and Process and for last 11 years all of his plants operating in U.K. have not only proved successful but during the war His Majesty's Government appreciated the assistance they have received from the Low Temperature Carbonisation Company, as well as their subsidiary firms who were able to supply continuously large tonnage of oil for war purpose.

There may be many experts in our country who have devoted considerable time to study this problem but unfortunately no actual experiments have been carried out, whereas, if any scheme is given effect to, it would

not only mean establishing a fool-proof plant basing on the experience of a successful firm of U.K. but continuous co-operation and subsequent technical services are also assured by that firm. I am grateful to Col. Bristow who authorised me to mention that he is even prepared to accept the Presidentship of the Board of Directors and he has also consented that the Indian Company could enter into an agreement with his Company on terms to be decided hereafter by which the Indian Company would obtain all technical assistance, results of researches made in the English Company's laboratories etc. etc.

This arrangement is, no doubt, to be appreciated as one of the best arrangements that could possibly be made as, by good-will and co-operation, if the Indian Company can obtain the experiences and results of the researches made on the U.K. it would save the Indian Company from considerable financial investments to make researches in our own country.

It would be folly to launch in a Scheme with a view to make experiments when the actual successful experiences of U.K. are at the disposal or will be at the disposal of the Indian Company. In my opinion the Indian Company would consider themselves as fortunate to come to an arrangement with the English Company and I can assure you that all possible technical assistance and advices would come forward from England with an open mind and positive intention to benefit India.

The present restricted output of soft coke in Bengal and Bihar fields is 69,000 tons per month and when the coal situation would ease out, it is estimated that production of soft coke may come up to 1,20,000 tons a month. Basing on these figures although personally I am in favour of putting up a plant to start with a capacity of 1,000 tons per day, I would also support a conservative policy of putting up a plant of 500 tons capacity per day with a refinery designed for 1,000 tons capacity. I may announce here that should the Scheme is matured, the Low Temperature Carbonisation Limited of England have agreed to undertake execution of final estimates, all necessary drawings including constructional drawings for the fabrication of parts in this country, provide technical assistance, scientists and experts and would supervise the installation of the plant as well as its operation for sometime, to train Indian workers and experts etc. Arrangements have also been made to train our men in U.K. under the English firm during the period of installation of the plant but in any case to avoid least possibilities of mistakes or experiments the pioneer firm of England has very kindly agreed to render all possible assistance to erect the first plant in India under their strict supervision and control; obviously the Indian Company have to pay all their expenses.

SCHEDULE (A)

ESTIMATED COST OF EIGHT 40 RETORT BATTERY
CARBONISING PLANT.

1939 English Prices

Coal Handling.—		£	£
Unloading, Crushing & Blending Plant including Silos and foundations			33,918
Batteries of Retorts.—			
Coal handling Plant including foundations.	5,068		
General foundations	2,560		
Steel work including coal skips	25,600		
Retorts	15,387		
Retort Fittings	28,068		
Brickwork	17,509		
Air Supply & Recuperation.	3,200		
Water service Pipes and fittings	2,480		
Foul Gas Mains and Fittings to Tar Catches including Hydraulic Mains and Cort Valves	8,700		
Fuel Gas Mains & Fittings from By-Product Plant to Holders and from Holders to Batteries	5,600		
Tar and Liquor Pipes and Fittings including Tar Towers	1,900		
Pyrometry equipment	2,627	118,699	
'Coalite' Handling.—			
Conveyor Plant Foundations	977		
Conveying Plant	11,600		
Screening & Loading Plant Foundations	217		
Screening & Loading Plant	5,928	18,722	
By-Product Plant.—			
Entablature Foundations	2,220		
Complete Plant including Electrostatic Precipitator, Primary and After coolers, exhausters, Spirits, Recovery Plant, etc.	28,738	30,958	
Storage Tanks.—			
Coal Oil	2,297		
Crude Spirit	938	3,235	
Two Gas-holders.—			
Foundations	693		
Gas-holders	5,656	6,349	
Steam Raising Plant.—			
Boiler House including foundation for chimney and softener	1,446		
Boilers including feed pumps, water softener and chimney	21,904	23,350	
Steam service Mains & Fittings.			
		2,085	
Producer Gas Plant.—			
Foundations	1,024		
Complete Plant including gas Mains to holders	11,340		
Tar Storage and loading	447	12,811	
Tar and Liquor.—			
Pumps & Pipes	246		
Evaporator Plant including foundation	2,723	2,969	
Water Services.—			
Mains & Fittings including pumps tanks, etc.	7,048		
Settling Ponds	2,469	9,517	
Electrical Supply.—			
Switchboards, Mains, Junction Boxes, etc.	9,205	9,205	
Workshops.—			
Foundations	94		
Buildings	1,744		
Machinery	900	2,738	
Offices & Laboratory.—			
Buildings	1,429		
Furniture & Fittings	434		
Laboratory Equipment	333	2,196	

Stores.—

	£	£
Building	1,350	
Furniture & Fittings	220	1,570
Workmens Toilets.		
		2,156
Weigh bridges.—		
Weigh office	133	
Railway weighbridge including foundations	673	
Road weighbridge including foundations	605	1,411
Locomotive shed.—		
Foundations	279	
Building	501	780
Locomotive		2,082
Railway Siding		48,539
Works Drainage		3,160
Roads Footways & Fences.		4,387
Safety, Ambulance & Fire Appliances, Etc.		331
Internal Telephone.		15
		3,41,083

NOTES.—Estimated that 60 acres would be required for site to cover Carbonising plant and Refinery. Nothing included to cover cost of site. Estimates for Steam Raising and gas Producer Plants cover certain anticipated Indian Condition and should produce steam and gas required by the Refinery but they are broad estimates and should be treated as such.

Electrical Generating station to be treated as separate item. No provision made for steam and/or gas required to generate electricity. The water service item is a broad estimate.

SCHEDULE (B)

ESTIMATED COST OF REFINERY FOR 1,000 TON
A DAY CARBONISING PLANT-ENGLISH 1939 PRICES.

Crude Oil Distillation.—		£	£
Foundations		1,068	
Distillation Unit		29,000	
Unit Pump House		292	
Pumps		709	
Transfer Pump House		758	
Tanks, Pipes, Valves & Fitting		13,244	
Pitch Bay Foundations		245	
Pitch Bays		3,195	
Oil meter		130	
Sundry Burners, Pitch Firing Equipment, etc.		795	
Air Compressor		64	49,500
Causticising Plant.—			
Foundations		460	
Buildings		5,166	
Causticisers		9,380	
Supporting Structure		430	
Kestner Evaporator		1,729	
Lime Handling Plant		1,146	
Lime Settling Tanks		1,977	
Filter Press		104	
Soda Ash Hoist		45	
Steam Engine		345	
Pumps		190	
Tanks, Pipes, Valves & Fittings		5,225	26,197
Washing Plant.—			
Foundations		364	
Building		2,424	
Pumps		340	
Tanks, Pipes, Valves & Fittings		10,640	
Buffer pots, Pumps, motors & Starters		1,588	
Separators		2,935	
Level controller		347	
Line shafting		305	
Hype tanks		124	
Air Receiver & compressors		575	
Acid handling plant including Building tanks, etc.		1,136	20,778

Tar-Acid Recovery. Cresylate Pretreatment.—

	£	£	£
Foundations	206		
Steam Still & Fractionating column	3,500		
Tanks, Valves, Pipes & Fittings	4,397		
Pumps	304		
Meters	147	8,604	

Carbonating.—

Foundations	206		
Towers	1,375		
CO ² Plant including fans	3,314		
Coke handling plant	696		
Separators	157		
Pump	143		
Tanks, Valves, Pipes & Fittings	1,537		
Air Compressor	131		
Building for fans, etc.	320	7,879	
		16,483	96,475

Springing.—

Foundations	139		
Springing Tanks, etc.	2,556		
Tanks, Valves, Pipes, & Fittings	682		
Rotary compressors, etc.,	504	4,044	

Distillation.—

Foundations	486		
Stills, Fractionating columns, coolers, tanks	21,606		
Supporting Structure	528		
Pumps	1,008		
Building for pumps	588		
Transfer Pump House	641	24,857	45,384

Diesel Distillation.—

Foundations	102		
Structure	461		
Still	2,440		
Tanks, Pipes, Valves & Fittings	2,542		
Pumps	519		
Building (pumps, etc.)	516	6,580	

Spirit Distillation.—

Foundations	281		
Still, Fractionating Column, etc.	2,917		
Structure	218		
Tanks, Pipes, Valves, & Fittings	7,015		
Pumps	364		
Building (pump, etc)	422		
Meter	95	11,312	

Bitumen Substitute.—

Foundations	210		
Plant	6,057	6,267	

Loading and Handling Products.—

Foundations	695		
Road & Rail Filling Station	1,011		
Drum Filling Station & Drum Store	1,652		
Weighbridge House	105		
Weighbridges & Weighing Machines	1,306	4,769	

Services—Electricity.—

Building to house switch-board	214		
Mains, Junction boxes, etc.,	4,097	4,311	

Water.—

Pump House	384		
Mains, Pumps, Reservoir, cooling Tower, etc.	8,000	8,384	

Steam Mains, Meters, etc.

	£	£	£
Producer Gas.—		5,580	
Pipes, Valves & Fittings	799		
Meter & Meter House	250		
Calorimeter & House	158	1,207	

Compressed Air.—

Compressor General Use		131	19,613
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Workshops.—

Foundations	41		
Buildings	1,383		
Machinery	652	2,076	
		1,92,476	

Offices & Laboratories.—

Foundations	200		
Buildings	4,284		
Furniture & Fittings	1,485		
Laboratory Apparatus	4,000	9,969	

Stores.—

Building	1,350		
Furniture & Fittings	220	1,570	

Workmens Toilet including Provision for

Foreman	2,500		
Diesel Locomotive	1,614		
Railway Sidings	6,000		
Site Preparations, Drainage and sewage	1,757		
Roads, Footways and Fences	2,553		
Safety, Ambulance and Fire Appliances, etc.	1,529		
Internal Telephone	500		
Garage, Cycle Racks, etc.,	300		
Petrol Pump	106		
Gate House	55		
		2,20,929	

PART III

This report will give you further details of the steps taken by me in despatching coal from India to England for the purpose of carrying out actual tests in the retorts of Coalite plant, as also the Chemical Engineering aspect of Low Temperature Carbonization.

The samples of coal have been collected from the following six collieries :—

West Laikdih Coal Co.	Romnagar Seam 15' thick.
Do.	Kharbari Seam 25' thick.
West Burrakar Coal Co.	Laikdih Seam 40' thick.
Shampore Coal Co. Ltd.	Shampore Seam 21' thick.
Khoodia Coal Co.	Bottom Brindabonpur Seam 33' thick.
Damaguria Coal Concern	Top Brindabonpur Seam 30' thick.

All the above collieries are situated in Mugma area, where Khoodia river is flowing. West Laikdih Coal Co., starts from the side of the river and if the proposed factory is located here, then the other collieries are within 3 to 4 miles' radius.

The following table will show the analysis report of the collieries :—

	Moisture	Volatiles	Fixed Carbon	Ash
West Laikdih Coal Co.				
Laikdih Seam 40' th.	1.00%	25.06%	53.78%	20.16%
Kharbari Seam 25' th.	1.20%	31.02%	55.48%	12.30%
" " 15' th.	1.04%	28.36%	54.10%	16.50%
Shampore Colliery	1.05%	26.05%	52.70%	20.20%
Brindabonpur Colliery	1.50%	25.40%	51.60%	21.50%
Khoodia Colliery	1.42%	28.32%	51.50%	18.76%

The recovery in Coal Carbonization Process entirely depends upon the volatile properties in the coal and the moisture contents. The moisture in case of all the six collieries is almost negligible, whereas the volatile could be averaged between 27 to 28%.

Until such time as the practical results are made known after the tests having been carried out, I can only submit certain figures based on working results in U.K.

It cannot be too widely known that it is only possible to obtain from a given weight of coal that which is there already. If the coal treated contains 32% of volatiles, and it is required to leave 8% in the residual fuel, then the by-products must consist of the extracted 24%—no more and no less. The average yield of products from one ton of good bituminous coal having 32 to 34% volatiles is approximately as follows:—

Smokeless fuel	14 cwt.
Crude coal oil	18 gallons.
Crude petrol	3 gallons.
Gas	30 therms.
Ammonium sulphate	4 lbs.
Liquor	20 gallons.

The following is a typical example of the coal used in England and the resultant smokeless fuel:—

	Carbon	Volatile	Ash	Sulphur	Water
Coal	55.01	32.29	3.82	1.02	7.86*
Smokeless Fuel	86.28	6.01	5.03	0.96	1.72*

The calorific value of the smokeless fuel may be as high as 14,500 B. Th. U's per pound.

The Crude oil varies somewhat according to the type of coal distilled, but a typical specification is as follows:—

SPECIFICATION "D"

Crude Coal oil

Specific Gravity at 60° F	1.037
Moisture	2.40%
Viscosity (Redwood No. 1) at 70° F	420 seconds
Viscosity (Redwood No. 1) at 100° F	133 seconds
Crude Tar Acids (In distillate to 315° C)	28.0%
In total oil distillate to 360° C	45.20%
Or in original Coal Oil	28.40%
Closed Flash Point (Pensky Marten)	140° F
Open Flash Point	176° F
Firing Point	218° F
Sediment (insoluble in Benzol)	487%
Ash	0.32%
Carbon Residue (Conradson)	5.76%
Calorific Value (B. T. U's per lb) gross	16965
Sulphur	51%

Distillation (by volume) Temperature

Temperature	%
Up to 100° C	4.8
170° C	5.6
180° C	6.0
190° C	7.2
200° C	9.6
210° C	14.8
220° C	18.2
230° C	23.6
240° C	28.0
250° C	32.4
260° C	36.0
270° C	39.2
280° C	42.4
290° C	44.8

300° C	47.2
310° C	50.4
320° C	53.2
330° C	56.0
340° C	58.4
350° C	60.8
360° C (drained)	58.2
Residue	34.8

And on distillation:—

Water	2.40
Light Oil to 175° C	3.30
Middle Oil to 260° C	30.30
Heavy Oil to 360° C	29.20
Pitch	34.80

The light oil obtained by distillation is further treated and yields the following:—

- Middle Oil
- Heavy Oil
- Light Oil (neutral)
- Middle Oil (Neutral)
- Heavy Oil (neutral)
- Admiralty quality fuel oil
- Low Temperature Creosote to B.S.S.
- "HITRAC" (A special oil of high tar acid contents)
- Diesel Oil
- Crude Spirit
- Refined Coal Spirit and other by-products.

The proposed plant would be designed by the well-known firm in England, who controls over five Coal Carbonization and Distillation concerns in England.

Description of Plant

The plant will comprise 8 batteries each of 36 retorts, making a total of 288 retorts which deal with 3200 tons of coal per week. The retorts are made of special cast alloy, each approximately 9' high and 4' across the base. Each retort consists of 12 tubes, the tubes being so designed as to facilitate the discharge of the carbonized products.

The retorts and combustion chambers are to be arranged alternately throughout the setting, so that each retort is located in a radiation chamber formed by the walls of the 2 adjacent combustion chambers. With this design, the retorts could be heated by radiation only, no live flame to come into contact with the metal.

Below each pair of retorts, a cooling chamber common to both and of sufficient size to hold the smokeless fuel from two retorts will be provided. The cooling chamber at its lower end is fitted with double doors, the inner door serving to support the fuel, whilst the outer one is arranged with a water seal to prevent the ingress of air.

The complete cycle of operation is as follows:—

The retorts are discharged and re-charged every 4 hours, a strict time-table being adhered to. The contents of the cooling chamber are discharged on to a conveyor. The door giving access from the retort to the cooling chamber is opened and the contents of the retort discharged into the

cooling chamber. The bottom door of the retort is closed and the retort is then charged with fresh coal dropped in from the travelling coal hopper above. During the charging and discharging, the retort is isolated from the gas main by means of a Cort Valve.

The plant will be operated 24 hours per day in 3 shifts of 8 hours each, so that the operation is continuous. The shift on each battery discharges its 36 retorts twice during 8 hours, so that each retort carbonizes 6 charges of coal in 24 hours. The smokeless fuel from the cooling chambers drops on to a travelling band, and the 8 battery bands feed a main collector which delivers all the fuel to the screens. The process and apparatus is so arranged in all the details that the coal and the smokeless fuel require practically no treatment by hand. The residual smokeless fuel has neither to be sized nor broken, and it delivers itself automatically in broken pieces of the right size for the domestic use.

During the process of carbonization, the gas is led from the top of each retort through an offtake pipe to the hydraulic mains and the gas handling system. The gas is first cleaned by being passed through an electrostatic precipitator of a vertical cylindrical chamber in which are suspended a number of electrodes standing at 19,000 volts, D.C. The electrostatic action on the gas causes any small globules of oil or suspended matter to be flung to the sides of the chamber from whence they drain, and are led away to a collecting tank. In effect therefore, the electrostatic precipitator acts as a highly efficient filter, which cannot become clogged and which never requires cleaning. The gas next passes to a bubbler, where it is washed with a dilute solution of sulphuric acid for the removal of ammonia. After leaving the acid washer, the gas passes to a condenser of the water tube type where any remaining light oil or vapours are removed.

All the foregoing apparatus is on the suction side of the exhaustor. After passing through the exhaustor, the gas goes to a scrubber where it is washed for the removal of petrol, the petrol being recovered from the wash oil by means of a steam heated still of special design. The stripped gas is then passed to a holder and returned for heating the carbonizing plant, etc.

Although the carbonization of coal at low temperature, produces large quantities of heavy tarry matters containing a large percentage of pitch, the plant will be so designed and operated as to prevent any blockages in the system and the pipes and mains will work for many months at a time without any necessity for cleaning.

The above is the general outline of the plant, but there are in addition innumerable details which play an important part in the final result.

The above description of the plant may look comparatively simple, and one is likely to wonder why the development of such plant would ever present any difficult problem either for the designer or for the industrialist. All the same, if one examines for a moment some of the problems which

confront the designer, the really great difficulties of the task will be more easily understood.

For example, take the question of the retort itself in which so many factors have to be allowed for and reconciled.

Coal is a bad conductor of heat and if the rate of heating is too slow and inferior coke is produced, the best results are to be obtained when the incoming coal is shock heated. The real secret of success attained by my friends in England is by striking a design of a retort, which would answer all the problems connected with the first-rate carbonization process. The retort can only become successful if the following results are obtained:—

The coal must be evenly heated throughout the mass, so that the whole of the resultant smokeless fuel is uniform in structure and volatile content. The outside of the charge must not be over-carbonized and the core must not be green (unburnt). The over carbonized fuel will not light readily or burn up quickly and if the core has been insufficiently heated, a smoky fuel will result.

The retort will be suitable for dealing with all types of coal, including bituminous smalls, non-caking etc., etc.

When dealing with bituminous coal, the design of the retort and the method of heating must ensure a strong coke that can be delivered to the consumers' places, often over several hundred miles away from the works, with a minimum of breakage.

In the discharge of the retort and the cooling of the charge, the fuel should break itself up in such a manner as will provide the greatest possible proportion of large pieces.

The retort must be easy to charge and discharge and the time required for these operations should be small.

The rate of throughput should be high, in order to reduce the capital cost per ton as far as possible.

The emission of gas should be free and unimpeded, and there should be equal gas pressure at the top and bottom of the retort.

The retort should be free to expand in all directions and should be entirely free from any moving parts.

The retort should have a long life with complete immunity from leaks or distortion.

The coal oil should be free from dust, which means that none of the charges must be blown over with gas into the hydraulic mains.

The question of retort design depends upon the arrangement of heating the retort and cooling the charge. For example, the firebrick setting must be so designed as to provide even heating of the retort over the whole surface. The heating must be by radiation only, and an efficient method of temperature control must be provided. The cooling chamber must be coupled up to the retort in such a manner that the discharge is easy, and subsequent cooling must be so regulated as to permit sufficient cooling to take place to prevent firing when the fuel is discharged to the atmosphere but the fuel must not be overcooled, otherwise

condensation of the gases will take place, causing the fuel to become sticky and involving the loss of products.

It may, therefore, be safely assumed that, not only the design of the plant but its lay-out, erection at sites and maintenance thereafter, if carried out by the acknowledged experts and successful firms of England, no one in this country should have any hesitation about its successful operation from the date the retorts are charged.

A separate report is under preparation on the subject of Distillation Scheme.

Letter No. D.S.C/2, dated the 15th April 1946, from the Divisional Superintendent East Indian Railway, Asansol.

At my meeting with the Committee on Friday the 12th instant, the Chairman said that he would be glad to have information to support my contention that the Coal Loading in 1945 had been better than in any year since 1941, and that in fact it was heavier than in 1939 so often referred to for purposes of comparison.

I enclose for the information of the Committee a short Note which gives the information referred to above, and certain other comments which may be of use to the Committee in controverting the erroneous impression that there has been a recent serious drop in efficiency.

I am also sending, as promised, six diagrams to show the Depots from which Pilots operate.

NOTE FOR THE INFORMATION OF INDIAN COAL COMMITTEE

1. Coal Loading.—

The following are average daily figures for coal loading on the E.I.Rly. for each year since 1939.

Year	Up	Down	Total
1939	721.9	1125.2	1847.1
1940	1045.4	980.2	2025.6
1941	1182.3	773.4	1955.7
1942	1063.4	625.0	1688.4
1943	945.0	750.2	1695.2
1944	896.9	791.4	1688.3
1945	952.2	925.7	1877.9

The monthly totals since January 1939 are given in the attached statement Appendix 'A'.

Due to the war with Japan the volume of Military traffic on this railway considerably increased and in consequence public traffic had to be greatly curtailed. This is reflected in the drop in coal loading since 1942. The loading in 1945 averaged 877.9 wagons per day which is about 190 wagons more than the previous year and 30 wagons more than the pre-war loading in 1939.

The loading in the first six months of 1945 compares with the following 6 months as follows :

Total 1st 6 months	Total 2nd 6 months	Difference
3,33,759	3,51,688	17,929

Had it not been for staff troubles due to epidemic dropsy in the Dinapore Division in December last, the Up loading would have been maintained at the previous level and on this assumption the drop in the total for the 2nd 6 months works out to about 3,000 wagons. The loading in the 2nd 6 months, therefore, without this staff trouble would have exceeded the first six months' total by 20,929 wagons. Since there were 3 days more during the 2nd 6 months as compared with the first, about 6,000 wagons can be accounted for due to this difference and the balance 14,929 may be considered to be the net increase or an average of 41 wagons per day. The average daily loading in the 2nd 6 months of 1945, therefore, works out to 1908 wagons.

In January 1946, the loading averaged 1924 wagons per day out of which 1,006 wagons were loaded in the Up direction but in February and March 1946 the loading dropped considerably owing to a shortage of empties and in consequence the average for the first three months dropped to 1852 wagons. The supply of empties lately has slightly improved and the loading for the first 10 days of April averaged 1966 wagons.

2. Trend of Traffic—

The change in the trend of traffic is clearly noticeable from the considerable increase in up-country loading as compared with the pre-war period. In 1945 an average of 952.2 wagons were loaded for up-country as against 72.9 in 1939. This has naturally led to an increase in the lead and turn-round of wagons.

3. Shortage of Empties—

There has been a considerable shortage of empty wagons in the coal fields since the Japanese war and loading has been regulated in accordance with the forecast of empties received from adjoining Divisions. This forecast has been mostly accurate but whenever it goes wrong short supplies are made. Then again whenever the requisite proportion of open empties are not available for mechanical loading either covered wagons are supplied or short supplies are made. The supply of open empties has been much better for some time now and the demands have been met over 90%.

It is essential for efficient operation to maintain a pocket of about 750 $\frac{1}{en}$ 1000 wagons in the Coalfields but this has not been possible.

4. Military Traffic—

The following military specials still run in the Up direction on this Division :—

- (i) One Military Mail daily to Rawalpindi.
- (ii) One Military Mail twice a Week to Bombay.
- (iii) Two other special trains.

If these trains are withdrawn the capacity thus released could be utilised for despatching about 200 coal wagons daily for up-country stations.

5. Up-Country Despatches—

We have already despatched on an average 952 wagons in 1945 and with this addition of 200 wagons, the target of 1150 wagons for up-country can be attained.

6. Down-Country Despatches.—

In the Down direction there is considerable capacity available and there is no difficulty in maintaining the target of 1100 wagons provided empties are available.

7. Operation on the E. I. Rly.—

The Chairman, Indian Coal Committee, had remarked at our meeting that he had received a general complaint from the Coal trade that the Operating on the E. I. Rly. was inefficient. Such a sweeping statement cannot be answered without entering into considerable details of Railway Operation on the entire system which is beyond the competence of this Division, but a few operating statistics are reproduced to give the Committee some idea of the position.

The following figures have been taken from Railway Board Statistics :—

(i) Net freight weight per train on certain Broad Gauge Railways compares as follows :—

Railway				Percentage variation a & c	Percentage variation b & c
	1939-40	1942-43	1943-44		
	a	b	c		
G. I. P. . . in tons	353.0	415.0	442.0	+26%	6.5%
B.B. & C.I. . . Do.	377.0	416.0	390	Nominal	-6%
B.N.R. . . Do.	400.0	449.0	451.0	+12.5%	Nominal
E.I.R. . . Do.	462	529	587	+27%	+11

+ Increase.

— Decrease.

(ii) Net ton miles per train hour for 1943-44 the latest year for which figures are available compares as follows :—

G.I.P.	5215.6
E.I.R.	4948.4
B.N.R.	4825.7
B. B. & C.I.	4358.0

This is the real test of efficiency.

The following figures have been reproduced from the latest Domestic Statistics of this Railway, June 1945.

(i) Net ton miles (excluding Military Specials) —

	June Figures	
	1944	1945
(a) Coal	367,936,869	468,090,160
(b) Goods	215,289,931	231,707,860
(c) Total	583,226,800	699,798,020

(ii) Average miles a ton of goods was carried—

	June Figures	
	1944	1945
(a) All coal	327	356
(b) Goods (excl. coal)	209	204
(c) Total load	271	284

(iii) Wagon usage statistics—

	June Figures	
	1944	1945
Turnround of wagons (in days)	10.1	10.5
Total load/turnround	26.8	27.0
Net ton miles per wagon day (excl. wagons of Mily. Spls.)	394	451
Net ton miles per wagon day (incl. wagons of Mily. Spls.)	427	466

(iv) Efficiency statistics —

	June Figures	
	1944	1945
Net ton miles per engine hour	1,954	2,348
Gross ton miles per engine hour	4,221	4,707
Gross ton miles per train engine hour	8,552	9,353
Wagon miles per shunting hour	607	608
Wagon miles per engine hour	174	182

Practically in each case there has been an improvement in 1945.

Further information if necessary may be obtained from the Chief Operating Superintendent.

APPENDIX 'A'

SUMMARY OF COAL LOADING FROM JANUARY, 1939 TO DECEMBER

	1939			1940			1941			1942			1943			1944		
	Up	Down	Total	Up	Down	Total	Up	Down	Total	Up	Down	Total	Up	Down	Total	Up	Down	Total
January	10430	34767	65197	32503	37722	60225	21676	39946	59622	34469	24169	39637	27693	22176	49869	28354	19805	48159
February	19291	31082	50373	23105	28305	51410	33519	35405	58924	30265	19123	51387	27056	21869	48925	28526	23463	51989
March	22253	35706	57959	23295	32391	55686	22130	24415	46545	27025	24312	51337	29046	26991	56037	30953	25017	55970
April	20707	21508	42215	24120	29903	54023	25493	19287	44780	34780	16709	50736	26971	24054	51025	29540	24211	53751
May	23275	35574	58849	23550	30197	53747	22115	22494	44609	32287	19327	47554	27855	26323	54178	28254	23550	51804
June	18077	26427	44504	20523	29925	50448	22800	24090	46890	34019	14302	48321	28397	27420	55817	29643	25353	54996
July	13351	23279	36630	23019	28558	51577	22060	29933	51993	27386	12116	40502	30168	21759	51927	24756	23632	48388
August	17578	21789	39367	23443	28854	52297	23256	25712	48968	25721	20727	46448	29912	19529	49441	29394	24025	53415
September	22550	25726	48276	24982	27408	52390	28323	21729	50052	27476	19431	46907	24072	20485	44557	34406	25027	59433
October	22741	25487	52228	24512	30432	54944	21061	23903	44964	29255	19959	49214	29977	19061	49035	28546	24377	52923
November	22596	25155	47751	23226	28503	51729	23925	21584	45509	22742	20729	43471	29942	19889	49831	29912	24237	54149
December	24127	25997	50124	23723	28491	52214	22624	29741	52365	22240	19925	42165	27061	19544	46605	29495	24897	54392
Total	1,624,468	4,10,707	6,74,175	1,82,806	2,38,768	4,21,574	1,51,516	1,92,329	3,43,845	2,55,150	1,29,141	3,84,291	2,44,923	1,73,531	4,18,454	2,35,245	1,52,473	5,97,727

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	1939	1940	1941	1942	1943	1944
Monthly Average	21067.1	24225.5	24152.7	21824	29807.2	21781.2
Daily Average	751.9	1226.2	1247.1	1043.2	1326.9	1059.4

147. Letter No. P/F/300, dated 9th July 1946 from K. B. G. Faruque, Chief Operating Superintendent, East Indian Railway, Calcutta.

Re : Coal for Locomotive Use.

While taking evidence of the representatives of the East Indian Railway on 21-6-46, you asked us to submit Notes on two points, viz. :

- (a) Coal grading trials carried out on this Railway in 1934 ;
- (b) effect of the supply of inferior coal on the efficiency of train operation.

2. Regarding the coal grading trials, a Note has already been sent to you by the Railway Liaison Officer, Calcutta Area, vide his letter No. K10 of 27-6-46.

3. As regards the second point the position is that Gr. II coals with a high ash content are not suitable for our Main Line Heavy Goods service particularly on the graded sections such as the Grand Chord. As an example of the effect of the use of these inferior coals on our train operation, I would like to quote the following facts.

4. On the $\text{GMO} \frac{1}{\text{en}}$ GYA section of our Grand Chord, the total time-table run of our Heavy Goods trains is 434 mts., including the halts at two watering stations giving an average speed of 14.5 miles per hour. This is based upon the issue of normal Gr. I Goods coal. During the middle of last year, however, the supply of Gr. I coal to this Railway was most inadequate and Gr. II coals from the Jharia fields had to be used for the Heavy Goods service on the Grand Chord section. The effect of the use of these inferior coals with the ash-content ranging up to 24% was that more time had to be allowed for fire cleaning at the two existing watering stations, two more fire cleaning stations had to be opened and another 23 mts. of additional running time including the allowances for the stoppages at the two additional fire cleaning stations had to be allowed in certain sections giving a total increase of 83 mts. of extra time on loco account between GMO and GYA. In other words the total time-table run between GMO and GYA was increased from 434 mts. to 517 mts. giving an average speed of 12.2 miles per hour. It will, therefore, be seen that due to the use of Gr. II inferior coals on the Heavy Goods service on the $\text{GMO} \frac{1}{\text{en}}$ GYA section the average time-table speed came down from 14.5 miles per hour to 12.2 miles per hour. During the last few months the supply of coal to this Railway has been better and the issue of Gr. II coal to Heavy Goods engines on the $\text{GMO} \frac{1}{\text{en}}$ GYA section has been avoided with the result that the two additional fire cleaning stations including the extra time, viz., 83 mts. allowed between Gomoh and Gaya have been withdrawn and the time-table speed of 14.5 miles per hour has been revived.

Letter No. K10. Dated the 27th June 1946 from the Railway Liaison Officer (Calcutta Area) East Indian Railway, House 105, Clive Street Calcutta.

COAL GRADING TRIALS—1934.

At your enquiry in Calcutta on Friday, the 21st June 1946, you asked for information about the Coal Grading Trials conducted on the East Indian Railway in the year 1934. These trials were carried out on instructions from the Railway Board to whom the results were sent. The following remarks have been compiled from the incomplete records now available in the E.I.R. office and from my own notes on 26 tests which I supervised.

The object of the trials was to determine relative figures of merit for the coals then in use. Such figures of merit might have been used to allot coals to the services for which they were suitable, and combined with the prices of the different coals, might have been used to compare their costs for steam raising at different consuming points.

A chemical analysis of the different coals was made with the object of comparing subsequent supplies from each colliery with the supply as tested.

Method of Trials. Coals under trial for passenger services were tested in a 4-6-0 type locomotive using superheated steam at 180 lbs. working 8 Down and 7 Up Express between Asansol and Howrah for three trips. Goods coals were similarly tested on a 2-8-0 Goods engine working three trips on a Goods train from Asansol to Medwan and back.

The pounds of coal consumed and pnds of water evaporated were measured with a high degree of accuracy, a hundred points being allotted for each 5 lbs. of water evaporated per pound of coal consumed. Points were deducted for drop in steam pressure, use of blower, time lost in cleaning fire, and for fire water temperature above 60°F. Points were added for safety valves blowing.

Results. From the E.I.R. files, it appears that the following coals were classed as suitable for Express services :—

Lodna	Giridih Mail	Victoria
Sripur	Jharia Khas	South J Bara-
Badina	Ghansadih	boni
Poidih	Chanch	Jogta
Bokharo	Charanpur	Kuard
Bemondia	North Adjai	Giridih ordinary

The following coals were classed as suitable for slow Passenger services :—

Sendra	Central Kirkend Sultan
Bansjora	Lakurka
Kargali Quarry	Satpakuria
Swang	Bhurkunda
Jeyramdanga	Begonia
Jogta	Madhabpur
	Samla
	Bokharo
	Khas Jad
	Khas Jam
	North ila

The following coals tested on the Passenger services were found unsuitable :—

Anil Kusunda	Siduli	Katras
Khas Joyrampur	Gaslitan	Kargali Pit
Madhuban	Northbrook	Kusunda Nyadee

The following coals were found unsuitable for use of the Goods services :—

Northbrook. Kargali Pit. Kusunda Nyadee.

Analysis.—Coals were analysed by the Railway Chemist & Metallurgist but the official records are not now available the attached statement being from my own record of the 26 tests which I supervised. (I noted that the analysis of GRD Ordinary, Item 15, appeared incorrect, probably because of bad sampling—as the coal did not contain as much as 20·11% ash.)

Evaporation.—Against from my own notes, the evaporation per lb. of coal burnt, after weightage on account of drop in steam pressure, use of pricker, and any time lost in fire cleaning, varied between 7·55 pounds for a good sample of Lodna, and 4·23 pounds for Kargali Pit.

Conclusions.—As mentioned above, the test results were submitted to the Railway Board and it is not known what conclusions were drawn.

My personal conclusions from the 26 tests which I conducted were—

- Raniganj and Jharia coals are equally suitable for steam locomotives.
- The percentage volatiles is, with these coals, not an important factor, coals with between 20% and 35% volatiles giving equally good results.
- The suitability of a coal for locomotive use can be fairly well estimated from the ash content which should not exceed about 14% for the Express services and about 18% for the Goods services, with moisture up to 2%.
- Coal may be supplied with a high proportion of smalls and dust; provided a good fire bed is obtained such coal gives good results.
- Different coals require different styles of firing; it is very important to supply the same coal constantly to the same men and not to keep changing or to mix coals from different collieries.

End I statement.

Statement showing Analyses of Coals Tested

NOTE: I noted at the time that probably the analysis of the Giridih Ordinary coal had not been taken from a fair sample and that the ash content was less than 20%.

Test No.	Name of coal	Moisture	Fixed Carbon	Volatile Matter	Ash	Calorific Volume B.T.U./L
1	11 Lodna (14A)	·92	64·23	23·36	11·49	13502
2	16 Poidih (DGR)	1·80	61·35	34·35	12·47	13384
3	12 Bokaro	·08	60·00	25·24	14·68	13285
4	27 Giridih Main	·59	61·98	24·31	13·12	13685
5	7 Jharia Khas	·82	66·04	22·44	13·19	13286
6	13 Charanpur	1·53	64·97	32·26	10·89	13550
7	18 Chanch	·06	57·57	27·00	14·57	12691
8	21 Victoria	·79	59·25	25·18	14·78	13267
9	35 Poidih (DGR)	1·91	49·84	35·31	12·94	13384
0	11 Kwardih	·41	49·71	33·95	15·03	12718
1	17 S. E. Baraboni	2·35	48·50	36·30	12·85	12956
2	30 Sendra Bansjora	·62	60·92	19·58	18·80	12889
3	25 Kargali Quarry	·68	57·46	24·58	17·28	12978
4	33 Bemondia	2·00	50·42	31·82	16·26	13037
5	28 Giridih Ordinary	·42	58·35	21·12	20·11	12691
6	22 Swang	·10	54·35	28·37	17·18	12889
7	24 Central Kirkend	·64	65·34	20·08	13·90	13384
8	32 Jogta (14)	·78	63·43	18·73	17·06	13087
9	31 Jogta (13)	·43	62·16	21·38	16·13	13266
0	34 Joyramdanga (PN. 1)	4·28	48·49	32·98	14·35	12295
1	29 Lodna (12)	3·86	47·40	34·13	14·61	12565
2	19 Joyramdanga	1·42	54·31	32·05	12·22	13087
3	5 Lakurka	1·02	61·45	23·38	14·15	13230
4	16 N. A. Jambad	7·0	50·71	35·29	13·30	13088
5	18 Bhurkunda	·63	54·25	31·90	13·22	13483
6	10 Baganis	·57	55·33	27·30	16·80	12718
7	36 Sendra Bansjora (12 & 13)	·66	61·32	19·55	18·47	13087
8	9 Gaslitan	·34	59·94	22·38	17·34	12560
9	20 Khas Joyrampur	·42	60·14	24·50	14·94	13285
0	14 Khas Satgram	2·46	50·15	32·56	14·83	12772
1	23 Katras	·78	63·73	19·82	15·67	12889
2	26 Kargali Pit	·77	56·00	22·30	20·93	12623

D.O. letter No. 13-C/46 dated the 17th May 1946 from the Chairman, Indian Coalfields Committee, to Mr. David Barritt of Simon-Carves Ltd., Manchester, England.

Letter No. C. O. & W. Dept. DTB/EL dated 28th May 1946, from Mr. David Barritt of Simon-Carves, Cheadle Heath, Stockport, England, to the Chairman of the Indian Coalfields Committee.

I recollect my chance encounter with you in Delhi when you were on your way to England—Carpenter introducing me as Chairman of the newly set up Indian Coalfields Committee.

I was glancing through the Minutes of a Conference between you and Brig. Cox, the Chief Technical Adviser of the Sindri Fertiliser Project and the following relevant items from the Minutes aroused my curiosity:—

- (a) "...6. There are certain factors in favour of installing coke ovens at the fertilizer factory, but as already pointed out in my previous note the question of whether coke ovens are installed at the fertilizer of factory, turns on whether a process is likely to be developed for making water gas from low grade coals by a direct process. We have information that this has been done in Germany, but the economics of the process are not known.

On this subject Mr. Barritt advised that, although this process could be developed the cost of producing water gas would be much higher than the production of gas from coke, owing to the elaborate arrangements required for purifying the gas. In Germany this high cost was spread over the production of other commodities whereas in a fertilizer factory such as the Sindri Project, the extra cost would be reflected directly in the cost of fertilizer produced."

- (b) "...7. On the subject of successful coking of low grade coals, Mr. Barritt said that he had no doubt whatsoever that this could be achieved. It is simply a question of specifying the grade of coal to be used and designing the coke ovens accordingly. Messrs. Simon-Carves have already installed coke ovens in England to produce metallurgical coke from coals of a quality, if anything, inferior to Indian second grade coals."

I wonder if you will be good enough to give my Committee the benefit of your knowledge and experience in respect of the above two points. Specifically I would appreciate details of the experience in Turkey, Czechoslovakia and U.K. of building coke ovens for low grade coals. Please also give us detailed information if possible about the other commodities referred to in para. (a) above. I need not add that the committee would very much appreciate your co-operation in this matter.

Dear Mr. Mahindra,

I am very pleased to receive your letter of May 17th and regret that I did not spend more time in Delhi where I could probably have helped you in your various problems. As, however, my passage home was fixed and my work at Hirapur had been rather protracted, my stay in Delhi was limited to a few days, a part of which was spent with Brigadier Cox on matters connected with Sindri.

To the two points you raise in your letter I reply as follows:—

- (a) I agree that the production of water gas direct from coal, without the prior need for making coke, is a matter which you are bound to investigate because if technically and economically successful it would not only eliminate the need for a coking plant but would enable you to employ non-coking coals of which in India there are adequate reserves.

Unfortunately, the data on such a process is very scanty. In England it is not used. As you will no doubt know, at the I. C. I. Billingham Works, where synthetic sulphate of ammonia is produced by the same process as you intend to use at Sindri water gas is generated from coke made in coke ovens on the same site. We are still building ovens at Billingham and as I.C.I. are aware of all developments in water gas manufacture, it is very unlikely that they would continue to spend money on coke oven plant if they considered water gas production from coal had any reasonable prospect of success.

In Germany large factories have been laid down for the synthesis of fuel and lubricating oils from water gas made from coke. I have no knowledge of water gas being made from coal for synthesis purposes on any commercial scale, although experiments are reported to have been carried out in Germany in this direction during the war. It does not follow however, if such a process has been proved to be technically feasible that it is economic. In Germany the manufacture of the required products has been the main consideration and cost of production, in the ordinary meaning of the term, have not mattered.

In your case, however, you cannot afford to employ any process which is likely to raise the price of the single product you will make. Costs of production of water gas, which will clearly be higher when made from coal instead of coke, will have as vital a bearing on the question as technical success. I would like to make two suggestions:

1. Various Government technical missions have been sent out from this country to investigate German processes. One of these missions dealt with gas production and synthesis. I have not seen the report as such a document would not

be issued to me but it will undoubtedly contain particulars of the water gas from coal plant. I think you should obtain a copy of the report through official channels with which you will be familiar.

2. If the information in the report is promising, you should send a small technical team yourselves to Germany to make a thorough investigation. Only by this means you will be able to satisfy yourselves on a matter which I agree is of vital importance in view of India's limited coking coal reserves.

(b) A non-coking coal is by definition a coal which will not produce a coherent coke when charged into known forms of carbonising apparatus and nothing can be done in the way of plant design, conditions of working or methods of operation to make such coals produce a commercial coke. A great deal can however be done to improve the coking properties of the poorer coking coals as, for example, many of the second grade Indian coals. To mention a few steps which can be taken :—

- (1) Many Indian coals suffer from an excess of adventitious ash which has the effect of diluting the coal with inert matter and destroying or impairing its coking power. Washing these coals (almost universal practice here), while not removing inherent ash—usually high in Indian coals—will effect an almost complete removal of free dirt, with corresponding improvement in the agglutinating value of the washed coal.
- (2) The quality of coke from poor coking coals can be improved considerably by charging the coal to the ovens in a compressed form. This is done extensively in the Saar, Silesia and in the Nottinghamshire and Derbyshire coalfields of Great Britain. We have built several such plants, the last in Scotland in 1941.
- (3) Poor coking coals give the best results as a general rule, when coked quickly in narrow ovens. At several Nottinghamshire and Derbyshire plants, where compressed charging was previously considered essential, we have produced and still are producing satisfactory coke by high temperature working in coke oven batteries charged in the normal way.
- (4) Blending of coals is an important matter, as it produces a uniform coal for charging to the ovens and enables a low grade coal to be reinforced accurately by a coal of greater coking power. Often a surprisingly small quantity of the latter is adequate. At one plant it was found difficult to make a coherent coke from Derbyshire coals even with compressed charging. The blending in of 15% Welsh coal however enabled a first class furnace coke to be made without compressing the charge.

The above does not by any means cover the whole subject and I suggest that the time has now

come for the potentialities of the lower grade Indian coals to be determined by experiment in a test oven built especially for this purpose. The enclosed report describes and illustrates the oven we have designed and use for this purpose. It takes a 10-cwt. charge and gives results identical with large scale practice. The use of this oven would enable you to determine very quickly the optimum conditions required for the various Indian coking coals and would also enable you to replace theory by hard fact.

An oven of this kind costs about £2,000 in the United Kingdom but almost all the material could be obtained in India by you to our drawings. Both Tata's and Indian Iron are building test ovens to our design.

I hope the above information will be helpful. I expect to pay another visit to India in December and would be happy to place such knowledge as I possess at your disposal

Letter No. C.O. & W. DTB/EF, dated the 5th July 1946, from Mr. David Barritt of Simon, Carves Ltd., Cheadle Heath, Stockport, to the Chairman, Indian Coalfields Committee

In reply to your letter of 11th June the normal way of charging coke ovens is to drop the coal through four or more charge holes in the roof of the oven from a mechanically propelled charging car which holds one charge of coal. The density of the charge obtained by this means usually lies between 42 and 50 lbs. per cu. ft. In compressed charging, the charge is formed in a box attached usually to the ram machine and having dimensions slightly less than those of the coke oven chamber it is proposed to fill. The coal is fed into this box and highly compressed by automatic stampers which give a density of coal up to 70 lbs. per cu. ft. When the charge has been fully formed, it is inserted into the oven through the ram side opening, the ram side door previously having been removed. A solid coke of highly compressed coal therefore form the oven charge and as the coal particles are much closer together than they would be with the normal top charging method, the power of the coal to coalesce is therefore correspondingly improved. In consequence, weakly coking coals which would not give a coherent coke by ordinary means produce a satisfactory coke when charged in a compressed form.

There are many disadvantages with this method, the chief being that the process is slow, cumbersome and costly. It is only used where it cannot be avoided.

Many years ago in this country it was the fashion to use compressed charging methods whether the coal needed it or not, but today, with the vastly improved technique of carbonisation, it is unlikely that any coal in Britain requires this treatment.

The design of the oven is the same whether it is to be used for top charging or stamp charging. Many plants which normally use compressed charging have also top charging equipment which they can use as an alternative if they wish.

As regards the last part of your letter, it will be quite all right for you to use my letter of 28th May and this present letter for the official records of your Committee.

Letter No. 3/25C, dated the 29th June 1916, from Messrs. Bird & Co., Chartered Bank Buildings, Calcutta.

Re Blending and Coking of Coals

With reference to your request that we should furnish you with a few records of our experiments on the blending and coking of coals, we enclose herewith a few notes giving details of our experiments both full scale and laboratory on the blending of certain seams of—

- (a) Jharia Coals;
- (b) Jharia Coals with Karanpura Coals;
- (c) Jharia Coals with Dishergarh Coals which we trust will be of interest to you.

The papers attached hereto have been extracted from records in our Research Dept. but we will furnish you with details of further large scale experiments which have been carried out at our Loyabad Coke-ovens.

The point we wish to emphasise is that for over 25 years we have been experimenting both in the laboratory and on large scale oven tests at our Coke-ovens with the blending of Karanpura and Dishergarh Coals. It is our considered opinion that a satisfactory metallurgical coke can be carbonised with a mixture of the superior Jharia Coals blended with certain seams from the Karanpura Field and also with Dishergarh Coals.

We will give you further information on this subject in due course but the attached papers may be of value to you meanwhile.

Karanpura Experimental Oven.

This oven was built to give coking conditions approximating as nearly as possible to those obtaining in a modern by-product oven. The chief difference was in the reduced length of the chamber, the charge being about 12 cwts. as against 8 tons in a Koppers oven. The dimensions of the coking chamber were as follows:—

Length	5 ft. 6 ins.
Height	5 ft.
Breadth	14 ins.

The oven was heated externally by coal fires, three on each side, connecting by flues to the top, down the end, and under the oven or not as desired. By altering the rate of firing and the draught, the coking period for a full charge could be varied from about 12 hours (minimum) to 26 hours or more, the temperature gradient being measured in each case at regular intervals throughout the coking period, by means of a thermo-couple pyrometer, introduced through the over door to a point near the centre of the charge.

The charge was introduced through the roof, from a hopper, as in the case of an ordinary by-product oven.

The results of various tests carried out in his oven on Karanpura coals and on mixture of

these coals with Indian coking coals are given below in tabulated form.

All samples were crushed to pass a 1/6" mesh screen before use.

Particulars of Sample	Weight of Charge	Coking Time	Result
Sample from Incline A.I. 14-Horizon 14. Argada.	1200 lb. 18 hours		Loose breeze small proportion of poor semi coke.
A.P. 33 Sample Horizon 14 Sirca.	"	"	About 50% Breeze Remainder loose semi coke.
A.I. 14 Incline Moistened with 10% water.	"	"	Slightly better than that of Test No. 1.
A.P. 37—Horizon 15 Sample somewhat weathered.	"	20	All Breeze. No signs of coking.
A.I. 14 Incline mostly bright portion 50% of dull portion rejected by hand-picking.	"	20	About 50% Breeze Remainder loosely adhering coke.
A.P. 33. Taking fine portion after coarse crushing and sieving through 1" mesh screen.	"	20	Ditto.
First 30 ft. of upper thick seam A.C.D. 10 core.	"	14	Gave about 70% of adherent semi-coke. Remainder breeze.
Two parts by weight of A.C.D. 10 core-average of 60 ft. Upper seam—with one part by weight Jherria coking coal Loyabad and Katras.	"	18	About 70% fairly hard grey metallic coke Remainder breeze from central part of oven.
First 16 ft. of lower thick seam A.C.D. 10 core mixed in equal parts by weight with Jherria (Loyabad & Katras) coal.	1000 lb	20	Fairly good hard grey, dense coke. Practically no breeze.
Second 20 ft. of Lower thick seam A.C.D. 10 core mixed in equal parts of Saltore core.	1200 lb	22	First class grey metallic coke from back part of oven. Not quite so firm and hard from door end.
Lowest 30 ft. of Lower thick seam A.C.D. 10 core, three parts, with one part by weight each of Loyabad, Katras and Saltore coals.	"	20	Fairly good hard grey coke. Practically no breeze.
Saltore coking coal alone	1200lb.	13 hrs.	First class hard grey metallic coke.

These results show that although the coal of horizons 14 and 15 (Argada and Sirca) possess slight coking properties they do not give a satisfactory coke in a large scale test.

By mixing these coals with equal quantities of Jherria of Saltore coking coals, a satisfactory metallurgical coke can be produced.

Of the various other seams tested on a small scale, one or two, for example, the bottom portion of C.I.2. section, the Badam (North Karanpura) sample, &c. were found to possess slight

coking properties, but not so good as to indicate that they would give any better result in a large scale test, than the thick seams of Horizons 14 and 15.

SIRKA-JHARIA COAL MIX

I beg to inform you that bulk carbonization tests on the above have been carried out as per the following:—

COAL ANALYSIS

Sirka Coal		Pure Jharia	
Moisture	6.0	Moisture	0.6%
Dry Sample		Dry Sample	
Ash	12.5%	Ash	14.7%
V.M.	32.2%	V.M.	24.1%
F.C.	55.3%	F.C.	61.2%
Analysis of blend 50% Sirka 50% Jharia		Analysis of Coke from 50-50 Sirka-Jharia Mix.	
Moisture	7.4		
Dry Sample		Dry Sample	
Ash	14.0%	Ash	18.5%
V.M.	26.7%	V.M.	0.3%
F.C.	59.3%	F.C.	81.2%
	100.0		100.0
		Shatter Index	2" 74% 1½" 86%
Coal			
25%	Sirka		
75%	Jharia		
Moisture	8.3		
Dry Sample			
Ash	14.3%		
V.M.	25.5%		
F.C.	60.2%		
	100.0		
Analysis of coke made from the above blend 25% Sirka 75% Jharia			
Dry Sample			
Ash	18.0%	Shatter Index	2" 72% 1½" 86%
V.M.	0.4%		
F.C.	80.7%		
	100.0		

NOTE.—The coke made from 50/50 Sirka-Jharia mix is not suitable for the blast furnace.

The coke made from the 25% Sirka and 75% Jharia, whilst containing a large amount of good coke contains also a large amount of inferior coke, unsuitable for the blast furnace.

In this connection it should be understood that all my tests previously carried out on these coals have been blended after crushing, whereas these experiments of a necessity have been blended before crushing. I am carrying out further tests with each coal, blending after crushing, this method of course would be impractical with the existing coal handling plant and should these latter tests produce a satisfactory, a special plant would have to be installed for blending purposes. Extracts from Transactions of the Mining and Geological Institute of India, June, 1926, Part 4.

Discussion on Dr. Cyril S. Fox's Paper on "The Raw Materials for the Iron and Steel

Industry of India." (Held at the Asansol Meeting on March 2, 1925.)

DISHERGARH SEAM—SALTORE COLLIERY

This is one of the best seams in the Raniganj field. Although the Dishergarh seam is not usually referred to as coking (in estimates of reserves of coking coal) the seam at Saltore yields an excellent metallurgical coke and we have coked thousands of tons of it in our Loyabad By-product Ovens. This seam is perhaps not quite typical of the seams in the Raniganj field—as a whole—in that (a) it is a coking coal, while most of the Raniganj seams are not coking, (b) its moisture and oxygen are lower and its calorific value is somewhat higher than is usual for a Raniganj coal. However, its high percentage of volatile constituents is typical for this field.

"The remarks relating to the coking character of the Dishergarh seam are quite new to me but appear to be well known to some members of the Mining and Geological Institute of India. The reserves of coal in this seam are estimated at 300 million tons, so that the total coking coal of good quality in the Raniganj field can be increased to 480 million tons. Allowing for 33.1/3 per cent losses the available reserves of coking coal in the Raniganj field can then be placed at 320 million tons on the information as it now appears. We have yet to discover if any other valuable seams are of coking quality—perhaps this information may also come to light as a result of the present discussion. Both Mr. Bathgate and Mr. Purdy spoke as though no coking coal (to give a coke suitable for use in a blast furnace) was to be found in the Raniganj coalfield. I do not know what the quality of the coke is but in any case the above coals could be readily mixed with an equal quantity of good quality coking coal from Jharia. Such mixing would place the available reserves of coking coal for Jharia and Raniganj, at a total (allowing of losses equal to 33.1/3 per cent.) of 640 millions tons.

Bhagaband Bulk Tests—	Coke Ash	Shatter 2"	Index 1½"
15-2-32	16.0%	84.6%	..
16-4-33	17.8%	74.0%	..
Bhulanbarraroo 16 Seam Box tests			
Standard Bulk test—	18.2%	90.8%	..
26-12-33	16.7%	84.0%	..
Sandra Box Test—			
26-10-33	19.5%	87.5%	..
26-10-33	17.0%	96.1%	..
Mudidih bulk test—			
27-10-33	20.8%	89.7%	..
Katras bulk test—			
4-9-33	22.7%	90.0%	..
Bench Coke—			
Average	18.9%	86.0%	92.0%

Karanpura—Jharia Mix			Shatter	Index
D/-24-3-36	Ash in Coke	2"	1"	
50-50 Argada—Jharia	20.9%	72%	85%	
75 Jharia—25 Argada	20.1%	84%	90%	
50-50 Sirka—Jharia	18.5%	74%	86%	
25 Sirka—75 Jharia	18.9%	72%	86%	
Blended after Crushing—				
25 Sirka—75 Jharia	19.9%	75%	88%	
25 Argada—75 Jharia	21.2%	75%	86%	

KARANPURA-JHARIA BLENDED COKE

Further to my letter No. 26-36/84 of 30-3-36, I beg to inform you that two further carbonizing bulk tests have been carried out on the lines suggested in my above, i.e. *Blending after crushing*.

The first test was comprised of 25% Sirka Coal 75% Jharia Coal.

Coal Analysis		
Jharia Coal Dry Sample	Sirka Coal Dry Sample	Blended Coal Dry Sample
Ash Content . 15.8%	Ash content 12.5%	Ash content 15.4%
V. Matter . 22.5%	V. Matter 32.2%	V. Matter 24.7%
F. Carbon . 61.7%	F. Carbon 5.5%	F. Carbon 59.9%
100.0	100.0	100.0%

Analysis of Coke made from above

Ash . . . 19.9%	Shatter index
V.M. . . . 0.2%	2" 75%
F.C. . . . 79.9%	1½" 88%
100.0	

Second Test

25% Argada Coal—75% Jharia Coal Coal Analysis

Jharia	Argada	Blended Coal
Moisture . 0.3%	Moisture 6.9%	Moisture 8.0%
Dry Sample	Dry Sample	Dry Sample
Ash . . . 16.4%	Ash . 17.2%	Ash . 16.7%
V.M. . . . 21.9%	V.M. . 31.0%	V.M. . 24.7%
F.C. . . . 61.7%	F.C. . 51.8%	F.C. . 58.6%
100.0	100.0	100.0

Analysis of Coke made from above

Ash . . . 21.2%	Shatter Index
V.M. . . . 0.3%	2" 75%
F.C. . . . 78.5%	1½" 85%

This coke is superior to what has been previously made and with a lower ash content. May be suitable for iron making.

150. LETTER No. 19/ICC/CAMP, DATED THE 1ST APRIL 1946, FROM THE SECRETARY, INDIAN COAL-FIELDS COMMITTEE, TO M/S. ANDREW YULE & Co., 8 CLIVE ROW, CALCUTTA.

As you are probably aware, the Indian Coal-fields' Committee has been considering amongst other things, the question of shipment coal at Calcutta. My Committee understands that you are acting as Secretaries of a Committee in Calcutta composed of the principal firms interested in shipment coal. For this reason,

I am writing to you to ask whether you will be so good as to advise my Committee on the following questions:—

- (i) the difficulties experienced at Calcutta Port by shippers of coal, with special reference to the adequacy and suitability or otherwise of mechanical plant, loading berths, and labour at the port, and
- (ii) the value of the pooling of shipment coal in war-time and the desirability and feasibility of its continuance as a permanent measure.

LETTER DATED THE 18TH APRIL 1946, FROM M/S. ANDREW YULE & Co., LTD., SECRETARIES, CALCUTTA COAL EXPORTERS AND CHARTERS ASSOCIATION, 8, CLIVE ROW, CALCUTTA.

I am directed to acknowledge your letter No. 19/ICC/Camp of the 1st instant and to give you below the considered reply on the questions—

- (i) the difficulties experienced at Calcutta Port by shippers of coal with special reference to the adequacy and suitability or otherwise of mechanical plant, loading berths, and labour at the port ; and
- (ii) the value of the pooling of shipment coal in war-time and the desirability and feasibility of its continuance as a permanent measure.

These questions can best be answered by giving first shippers ideas of conditions pre-requisite to efficient handling of coal shipments from this port, and then to refer to their criticisms of existing port facilities and of the war time system of pooling shipment coal if applied to post-war conditions. We wish to make it clear that our answers are based on the assumption that shippers will again be competing in the world market for tonnage and that responsibility for quick turn round of steamers will again be that of shippers.

The pre-requisites of efficient coal shipment are—

1. Quick handling of wagons in the docks marshalling yard.
2. Quick and correct placing of sorted wagons from marshalling yard alongside steamers at berths.
3. Quick turn round of wagons inside the docks, depending on organisation of labour and reduction of time lost between withdrawing empties and replacing with full wagons.
4. Provision of sufficient berths, both mechanical and labour. Maintenance of the mechanical berths and efficient staff for their operation. A steady and adequate supply of labour for the labour berths, under energetic supervision.
5. Provision of adequate stacking ground within easy lead of labour berths.

6. Avoidance of delay in handling steamers in and out of berths in the Coal Dock.

We will now deal with your second reference first as on considerations we shall bring out in that connection must our appreciation of existing berth, plant and labour facilities be understood.

From shippers point of view the only reasons that made pooling of shipment coal desirable were—

1. Control of shipping by M.O.W.T.
2. The war time need for secrecy about movement of steamers.
3. The need for secrecy regarding destination of coal.
4. Urgent necessity of getting coal to the right place at the right time, coupled with the relative unimportance of quality or suitability of the coal.
5. The necessity of giving steamers the quickest possible turn round.
6. The importance of making the war time burden on railways of transporting coal from coalfields to docks as light as possible by spreading the incidence of traffic as evenly as possible throughout the month.

In peace time conditions points 1 to 4 above have disappeared and quality and suitability of shipment coal has already resumed its full importance. The system, in shippers opinion and experience, failed in respect of point No. 5. The intention was that steamers would take their turn at berths according to the priority attaching to the destination of the cargo and that there should always be a steady flow of wagons in addition to coal being always available from stack. Admittedly coal stocks at the docks were never built up or maintained, at the target figure laid down, due to coal raisings being inadequate, but even had stocks approached the target, the quick turn round of steamers would not have been achieved for reasons inherent in point No. 6. The steady flow of arrivals of wagons meant that when berths were full there were insufficient wagons on hand to keep the loading capacity of mechanical or labour berths fully occupied. So that a steamer having spent more time at a mechanical berth than would have been necessary if sufficient wagons were on hand was then delayed in finishing at a labour berth by reason of part of the requirements having to be loaded from the ground—always an uneconomic procedure. On days when berths were empty, daily arrivals of wagons were dumped, providing more coal to involve delay in subsequent handling into steamers. Consequently steamers spent considerably more time per ton in berth under the pooling system than was the case pre-war.

In illustration of this point we quote below from a memorandum put up to M.O.W.T., Calcutta, and to the Chairman, Calcutta Port Commissioners, by the principal shippers in August, 1945.

"There are now 2 labour and 2 mechanical berths working on the west side and a horse jetty may be available shortly. Previously there were 3 labour and 2 mechanical berths on the west side and 3 labour and horse jetty on the east side, a total of 9. The reduction in number is of course a matter of policy outside control of Port Commissioners.

The actual average turnover at the berths available in the first 6 months of this year compared with the turnover at the same berths in the same 6 months of 1939 are given below :—

Average monthly turnover Jan./June (tons)

		1939	1945
Berths No.	15	33,708	22,730
	16	20,874	23,002
	18	25,776	17,908*
	19	60,836	29,806
	20	53,135**	22,859
Total average per month		1,94,329	1,16,305

*Average for 4 months as berths laid off from 25th April.

**Include manganese ore as follows—

19 berth 30,956 tons.

20 " 15,421 tons.

The drop in turnover compared with 1939 is 40% viz., 78,024 tons monthly or 12 average steamers. In addition there was the turnover in 1939 at Nos. 22, 23, and 28 berths and the Horse Jetty on the east side of the basin."

Admittedly part of the reduced turnover at berths was due to lack of coal at source and to other factors connected with the operation of the Coal Dock to which we shall refer later, but undoubtedly the figures illustrate the effect of the pooling system coupled with the system of evenly distributed transport of coal to the docks regardless of the fluctuating requirements of steamers.

Shippers wish to make the point with all emphasis that the quickest turn round of steamers depends primarily on having sufficient coal in wagons at the dock or in transit to the dock when the steamer is ready to enable direct loading wagons to proceed without break at the full capacity of the berth, be it mechanical or labour, until completed.

This last requirement pre-supposes the capacity of the railways to cope with considerable variations in daily traffic, which in war-time could not be dealt with but which in the earliest possible future they should equip themselves to do.

Shippers therefore can hold no brief for the pooling system and advocate a return to the system whereby shippers, confirmed by owners agents, advise Port Commissioners Coal Dock Superintendent, the readiness date of each steamer; the P. C. Coal Dock Superintendent subject to a vacant berth being anticipated, then advises the Railways Allotment Officers the quantity of coal collieries at which to be loaded (as advised by shipper) and the date from which loadings

should commence to enable sufficient wagons to be in the marshalling yard consigned to that steamer by name on the date it is expected to berth; the Allotment Officers then allot wagons to the collieries concerned against indent accordingly.

It is appreciated that shippers are asking for considerable support and co-operation from the railways in advocating a return to this system, not only in handling fluctuating traffic but in allowing a certain degree of latitude over the turn round of wagons but as the Railways found in the past, although on occasions the system leads to delay in release of wagons at the docks nevertheless the great majority of wagons are released in a shorter time than is the case with other coal traffic, and on balance the railways are the gainers. In the interests of the coal shipment business as a whole this latitude should be allowed, when occasion arises, without charging demurrage.

The pooling system failed to cover the position when a certain quality of coal was required for a certain type of consumer, e.g., Gas Producing Coal or specially sized coal. Restricted stacking space rendered it impossible to keep different qualities satisfactorily separated and if sufficient wagons of the particular type of coal were not arriving it was not possible to supplement loading from stock with the correct quality of coal. In the same way special coal consigned for a particular purpose was on occasions diverted to another steamer in order to get that steamer away. It is essential in post-war conditions that shippers should be able to load coal to the specification actually required by the buyers.

It is not suggested that recourse may never be required to stacked coal but sufficient stocks for this purpose can be maintained and separated according to quality if sufficient stacking ground is provided.

The points made above allow your first reference now to be brought into review, namely to what extent the facilities in the coal dock meet shippers requirements and the quick turn round of wagons and steamers.

Turning back to the pre-requisites detailed on the first page of this letter, points 1, 2, and 3 are matters of—

Organisation.—In the hands of Port Commissioners and involve mainly efficient staff and supervision from marshalling yard to berth provision of sufficient locomotive power, maintenance of permanent way in good condition. All these require close liaison between the Port Commissioners shipping staff and transportation staff, and of the shipping staff with shippers own dock staff. It was unavoidable that during the war period loco power became short and permanent way could not be maintained in good condition, and to a great extent the pooling system resulted in the shippers control being cut out, but all such deficiencies should now be capable of improvement and are in fact tending that way.

One suggestion, already put before the Port Commissioners, is however worthy of close examination. The present system of placing wagons at berths is that wagons are placed twice a day, with a third placing if night work is to be done. All wagons of each placing are unloaded before empties are withdrawn and the next placing made. This involves a break of about 3 hours between the morning and the afternoon placing. If placings were staggered, and at the labour berths, gangs were staggered so that of three lines of wagons two were being worked continuously and the third being drawn out and replaced, a considerable speed up would result. The permanent way has now been remodelled to permit of this system and shippers would like to see it introduced.

Adequacy and suitability of Berths.—Particulars of berths in use today as compared with pre-war are given above.* It will be seen that available berths had been reduced to 2 mechanical (Nos. 19 and 20) 2 labour (Nos. 15 and 16) berths. An occasional labour berth (No. 21, Horse Jetty) will shortly be available but owing to its design it will not have the capacity of No. 15 or 16. No. 18 berth has been out of commission since April 1945 for reconstruction as a mechanical berth, work on which is now proceeding.

As regard type of mechanical plant for coal loading the most efficient system as used in U.K. and as used pre-war at well equipped continental ports, is the mechanical tipping of complete wagon loads into hoppers which feed onto conveyors which in turn deposit the coal direct to ships holds through anti-breakage devices. The difficulty of similar arrangements in India has always been the problem of devising a means of bodily tipping open wagons which are not of a standard size, and the fact that covered wagons are also used for coal transport. The two existing mechanical berths are therefore on the principle of cranes and hoppers. The contents of wagons are unloaded by labour into 5 ton hopper buckets which are then raised and lowered into holds by cranes. While this system is not so expeditious as the tippler and conveyor system, it has the advantage of reducing breakage to the minimum as buckets are lowered to actual coal level in holds before discharging.

It is understood however that the new mechanical berth (No. 18) will be on the conveyor system and that means have been found of dealing bodily with wagons. Details have however not been vouchsafed to shippers. They are given to understand however that its capacity will be 5000 tons in 10 hours and that the intention is to use it as follows. The average 7000 tons steamer will berth over night and be loaded up to 5000 tons during daylight. During the night following the 5000 tons will be trimmed while the steamer shifts to a labour berth where the balance cargo will be completed, thus turning the steamer round in 36 hours.

It is not practicable to finish off a steamer at a mechanical berth and the new berth will be a considerable improvement to the facilities of the dock though it will not be capable of loading parcels of different qualities or sizes of coal in different holds (as are the existing mechanical plants).

We have nothing to say about the design of the labour berths, other than what has already been recommended for staggering the placing of wagons and labour gangs, but the balance between mechanical and labour berths is an important consideration, and in our opinion 4 labour berths are required to strike a safe balance with 3 mechanical berths. As has been pointed out above the present position provides only 2 labour berths and the horse jetty which is only part time available and owing to its adaptation as a horse jetty permits only comparatively slow loading.

It has been estimated by Port Commissioners that the capacity of the docks will be 2,70,000 tons per month for existing berths, plus 1,00,000 tons per month at the new mechanical berth, or nearly 45 million tons per year. These figures are based on 20 days per month which is probably a fair basis. This capacity is about 35% in excess of the pre-war turnover and should therefore meet shippers requirements for some years to come. But we consider these estimates are very optimistic in relation to what can be done in practice even assuming the most favourable conditions and the most efficient operation of the docks in all other respects.

Labour Supply.—This will always be a limiting factor to the loading capacity of the dock so long as seasonal labour is relied upon. The contractors have said that a labour force of 2,500 is sufficient for the labour berths now provided. We are not in a position to comment on this but the labour force aimed at pre-war for seven labour berths was 3,000 heads on the West side and 1,000 on the East Side of the dock. The important point is that the labour contractors should be kept closely informed by Port Commissioners shipping staff regarding the shipping programme so that the contractors can take steps to draft in extra labour to meet busy periods. Pre-war the docks were particularly fortunate in having men possessing great qualities of energy and personality in charge of the labour and this is fully as important as the size of the labour force in getting the best results at the labour berths.

Stacking ground.—This has been severely restricted by the erection of A.R.P. structures. These should be cleared without delay and the maximum stacking ground again made available to allow of different qualities and sizes of coal being stacked separately and in convenient proximity to the berths.

Berthing and clearance of steamers.—The increased traffic in the port and a reduction in the number of harbour masters during the war period resulted in congestions and delays in bringing steamers into and out of the coal dock and in transferring steamers during loading from mechanical to labour berths. This handicap should not arise in future circumstances.

Before summarising our reply, we wish to emphasise additional and purely commercial reasons for aiming to load the maximum quantity direct from wagons. The reduction in handling reduces not only loading time as pointed out above but also—

- (i) reduces cost incurred in double handling
- (ii) reduces breakage of coal incurred in double handling
- (iii) provides a satisfactory check on quantity loaded.

The last of the three points is a very important one commercially as the goodwill of the coal shipment trade depends to a very large extent on customers being satisfied with outturn compared with Bill of Lading or Survey weights and in the event of dissatisfaction or dispute, shippers ability to produce a complete record of railway weights of wagons direct loaded to ship is extremely valuable for the purpose of removing doubt in customers mind.

Our treatment of your questions has been as full as possible as we have felt it important to bring out all factors contributing to the fostering of the coal shipment business. It will be convenient therefore, if we close with a summary of the points we have made.

1. Pooling of shipment coal would not be a success in post-war conditions because—

- (a) in practice it retards loading of steamers,
- (b) it does not allow for or facilitate the loading of particular qualities or sizes of coal, either as straight cargoes or as parcels.

2. Shippers therefore recommend return to the pre-war system of consigning of coal as and when required to specific steamers.

3. Importance is stressed of organisation within the dock from arrival of wagons at marshalling yard to withdrawing of empties, covering staff liaison, loco power, track maintenance; and a revised system of dealing with wagons at berths is suggested.

4. Attention is drawn to the most approved type of mechanical handling from wagons to steamer and the obstacle of unstandardised wagons in India. It is recommended that while extension of mechanisation is welcomed the balance between mechanical capacity and labour berths must be carefully considered.

5. Labour supply must be adequate, and equally important it must be steadily maintained at such a level. A source of permanent labour should be tapped to overcome the deficiencies of seasonal labour. Supervision of labour is of great importance.

6. Stacking ground should be cleared of A.R.P. structures to facilitate maintenance of adequate stocks stacked discriminately according to specification.

7. Shortage of staff for berthing and clearing steamers has been a source of loss of time which should now be capable of improvement.

Although outside the terms of your reference to us, we wish to take this opportunity of stressing the importance of the Coal export business not only to the coal industry but to the country itself. We have during the past twelve months lost no opportunity of putting the case in favour

of encouraging coal exports before the Hon. Supply Member, both direct and through the Coal Commissioner. The arguments can be briefly summarised here as we have no doubt that they are already receiving the earnest consideration of your committee.

In the interests of the general economy of India—

1. India requires exports to balance her necessary imports, particularly of capital goods. Coal provides an ideal form of valuable export.
2. The promise of outward cargoes attracts tonnage and particularly for Indian owned shipping provides an outward cargo to balance their import cargoes e.g., of rice from Burma.
3. To restrict India's natural markets such as Burma, Ceylon and Malaya, as well as China will divert those markets to other sources of supply and this may have its effect on other commodities than coal.

In the interests of the coal industry itself—

1. So long as internal transport continues to be the bottleneck on keeping India's industries supplied, so long will this bottleneck react as a limiting factor on coal production.
2. The longer the industry is restrained from entering its coal export markets, the greater the opportunity for other countries to capture those markets. This is what happened during the export ban following the First World War and it took 15 years after the removal of the ban for the industry to regain any appreciable part of those markets.
3. More coal can be raised if more coal is moved. The haulage from coalfields to the port of Calcutta is comparatively short, there is ample track for traffic and this route has never suffered from the restrictions that affect up-country or South India.
4. For these reasons export can be allowed without any detrimental effect on the internal supply economy.

151. LETTER NO. 20/ICC/CAMP, DATED THE 1ST APRIL 1946, FROM THE SECRETARY, INDIAN COALFIELDS COMMITTEE, ADDRESSED TO M/S. SCINDIA STEAM NAVIGATION CO., BOMBAY AND M/S. BRITISH INDIA STEAM NAVIGATION CO., 16, STRAND ROAD, CALCUTTA.

As you are probably aware, the Indian Coalfields Committee has been considering, amongst other things, the question of shipment coal at Calcutta. As one of the steamship companies interested in the handling of such coal, my Committee is desirous of obtaining from you a statement of the difficulties experienced at Calcutta Port in the handling of shipment coal, with particular reference to the adequacy and suitability or otherwise of

mechanical plant, loading berths, and labour at the port. The favour of an early reply will be much appreciated.

LETTER NO. G6/1166, DATED THE 9TH MAY 1946 FROM THE SCINDIA STEAM NAVIGATION COMPANY LTD., 7, WELLESLEY PLACE, CALCUTTA.

With reference to your letter No. 2(17)/ICC/46 of the 3rd instant, we have to refer you to Messrs. Mackinnons (Managing Agents : B.I.S.N. Co., Ltd.), Calcutta Office letter dated the 5th ultimo addressed to the Secretary, Indian Coalfields' Committee (Camp), New Delhi, and the same speaks for itself. You will observe from Messrs. Mackinnons' letter that we are also in agreement with the views expressed therein. However, for your ready reference, we enclose herewith a copy of Messrs. Mackinnons' letter in question.

LETTER DATED THE 5TH APRIL 1946 FROM THE BRITISH INDIA STEAM NAVIGATION CO. LTD., CALCUTTA.

With reference to your letter No. 20/ICC/Camp of 1st instant we would inform you that, in our opinion, the port of Calcutta, although lacking in modern equipment for the handling of coal may nevertheless be regarded as sufficiently well equipped to cope, under normal conditions, with the volume of coal exported from this port.

The difficulties which have undoubtedly been met recently have been due to unavoidable conditions arising out of the war, which it is to be hoped, will gradually disappear.

From our own experience we can say that under pre-war conditions it was possible to load a collier of average size (say 7500 tons) in about 2 days and sometimes in under 24 hours. These were, of course, exceptional cases for which special arrangements had to be made, but it serves to illustrate how expeditiously coal can be loaded under normal and favourable conditions by skilled labour with a minimum of mechanical assistance.

Scindia and Asiatic S.N. Companies who are also interested in this carriage of coal from Calcutta are in agreement with these views.

A NOTE BY DR. MAITRA ON THE RECOVERY OF BY-PRODUCTS FROM INDIAN COAL.

Coal is not only one of the most convenient and efficient materials for the generation of heat, light and power, but is the source of several important products. These products are obtained when coal is subjected to a process of distillation.

QUANTITY OF COAL DISTILLED IN COKE OVENS AND GAS WORKS

2. Coal is distilled in India primarily with the object of obtaining either metallurgical coke or coal gas. There is at present in the country a capacity for coking 3.5 million tons of coal per annum. Calculating on the basis of production of 70—75% of coke from coal carbonised, the coke ovens are capable of producing 2.5 million tons of metallurgical coke, which is consumed

mainly in the Iron and Steel Industry. In addition, about 130,000—140,000 tons of coal is distilled for the production of coal gas in Calcutta and Bombay.

PRODUCTION OF COAL TAR

3. The yield of coal tar from coal in high temperature coke ovens is about 2·5 per cent by weight, or 4·5 gallons of coal tar per ton of coal coked. Roughly, the production capacity of coal tar in the coke ovens is about 88,000 tons per annum. In the gas works, the yield of coal tar is about 10 gallons per ton, or 5% by weight of coal carbonised, and the production of coal tar in the gas works is about 6,500 tons per annum. Thus the total tar production capacity in the country at present is 94,000—95,000 tons per annum. The actual production of coal tar is however, considerably less. Normally, the net amount of coke oven coal tar available for distillation is 90-95 per cent of the gross production, as some of the tar is retained at the producers works for internal use. The proportion of tar available for distillation has been much lower in recent years on account of war time conditions and the necessity of using considerable quantities of coal tar as fuel in steel furnaces. As will be seen from the Table below, the production of coke oven coal tar has gone down appreciably in recent years due to shortage of coal, as the net amount of coal tar available for distillation has been reduced to an even greater extent than the gross production.

Year	Gross production	Net amount available for distillation
1935-36	59,000	57,500
1936-37	64,000	61,500
1937-38	64,600	58,000
1938-39	62,500	52,000
1939-40	70,500	62,500
1940-41	82,000	72,500
1941-42	80,500	74,000
1942-43	72,500	51,500
1943-44	64,500	38,500

DISTILLATION OF COAL TAR

4. The quantity of coal tar actually distilled and refined had gone up steadily from 15,000 tons in 1930-31 to over 60,000 tons in 1941-42. Since then, however, there has been a falling off in the amount of coal tar distilled, as the amount available has been reduced drastically.

COAL TAR DISTILLATION PRODUCTS

5. The main products of coal tar distillation are road tars, creosotes and pitch. In addition, it is possible to obtain the following :—

- Naphthalene.
- Tar acids (phenol, cresoles and higher boiling tar acids).
- Tar bases (pyridine, etc.).

The yields of (a), (b) and (c) represent only a very small percentage of the coal tar distilled; about 5 per cent in the case of average Indian coke oven tar.

6. Prior to 1939, distillers mainly confined their efforts to the production of road tar, creosotes, disinfectants and pitch. Since then, however, it has been found possible for them to extract and refine naphthalene, phenole, cresols and very small quantities of low boiling tar bases (pyridine). The approximate war time production from Indian coal tars has been as follows :—

Naphthalene	600 tons per annum
Phenol	50 " " "
Cresoles	100 " " "

In the case of phenol the potential output from coal tar is quite inadequate and the greater part of the estimated demand in the country must, therefore, be met from synthetic production.

FACTORS AFFECTING THE CHARACTER OF COAL TAR

7. Coal tar is an exceedingly complex substance containing several hundred different chemical components. The character of the coal tar depends to a very great extent on (a) type of coal used for coking (b) design of coke oven or retort, (c) temperature of coking and (d) rate of coking. The temperature at which coal is carbonised plays the most important part. Low temperature carbonisation, at a temperature range of 450° to 700° C. produces a soft coke, and a high yield of a thin coal tar containing comparatively large quantities of paraffinic compounds. High temperature carbonisation, at temperatures 900° to 1200°C. produces a hard metallurgical coke, and a comparatively low yield of a thick coal tar which is mainly composed of aromatic compounds. In India, coal tar is produced mainly in high temperature coke ovens, and to a small extent in high temperature gas works retorts. Practically no low temperature tar is manufactured. The coal tar is regarded only as a by-product of coking; either coke or coal gas being the main product. The coking processes are so designed as to give the maximum yield of either metallurgical coke or coal tar gas of the desired specification. The production of coal tar is regarded as merely incidental.

LOW TEMPERATURE CARBONISATION OF COAL

8. Suitable tar for by-product recovery is obtained when the temperature of coking is comparatively low. But the coke from such ovens is not entirely suitable for metallurgical purposes. The coke may, however, find use as soft coke for domestic purposes and could be utilised for many of the industrial operations where coal is used at present. Soft coke for domestic use is still made by burning powdered coal in heaps and letting the tar and ammonia go to waste. Steps should be taken to stop this and conduct all coking for production of soft coke in small low temperature model ovens. The possibility of converting low grade coals into better types of soft coke by blending is an important point in favour of low temperature carbonisation, as high grade coal exists in very limited quantities in India. Low temperature carbonisation yields from coal 2-3 times as much tar as from high

temperature distillation and is particularly useful for the recovery from coal of large quantities of liquid fuel and carbolic disinfectants.

RECOVERY OF BENZENE AND TOLUENE FROM COKE OVEN GAS

9. Indian coal tars do not contain appreciable quantities of benzene or toluene. These important compounds are, however, present in greater abundance and are more easily obtained from the coke oven gas, which yields about 2 gallons of crude benzol per ton of coal carbonised. The gas is scrubbed by a suitable absorption oil, circulated counter current to the gas in a packed tower or washer of suitable design. Some of the products from the gas are absorbed in the oil, and are later recovered in the form of crude benzol by steam distillation of the enriched absorption oil. Crude benzol is refined to yield benzene, toluene and xylenes.

RECOVERY OF AMMONIA

10. Ammonia is also recovered from coke oven gas. This is achieved by either bubbling the gas through sulphuric acid or by cooling and scrubbing the gas with water. The average yield of ammonium sulphate in India is 25 lbs. per ton of coal coked and the present production of ammonium sulphate from this source is between 20,000-25,000 tons per annum.

BENZOL RECOVERY PLANTS AT THE MAIN STEEL WORKS NECESSITY OF MAINTAINING THEM IN FULL PRODUCTION

11. Besides the two small recovery plants at Baraee Coke Co., and State Railway Colliery, Giridih, E.I.Rly., the important Benzol Recovery Plants are situated at the two main Steel Works (Tata Iron and Steel Co., Jamshedpur and Indian Iron and Steel Co., Hirapur). These Recovery units are the property of the Government of India, but are operated on behalf of the Government by the respective Steel Companies under agreement for a certain number of years. In the event of the Government deciding at any time to discontinue operation of these plants and to dispose them of, the Steel Companies have the option to acquire them. The capacity of these Benzol Recovery Units is as follows :—

Benzene	2.1 million gallons per annum
Toluene	0.42 " " "
Solvent	
Naphtha	0.10 " " "

12. For the establishment of the Fine Chemicals, Drugs and Dyes industries in the country on a firm basis, it is essential that adequate quantities of Benzene and Toluene should be available. The large plants at Jamshedpur and Hirapur for the production of these substances should continue in full operation, utilising the products as motor fuel until such time as the Fine Chemicals and allied industries are ready to absorb them.

PRODUCTION OF INTERMEDIATES AND SYNTHETIC CHEMICALS FROM PRIMARY PRODUCTS OF COAL DISTILLATION

13. From the primary products of coal distillation, such as Benzene, Toluene, Phenol, Naphthalene, etc., large number of intermediates and synthetic products are obtained. These chemicals are of greatest interest and importance as drugs, antiseptics, dyes, solvents, photographic chemicals, rubber accelerators, perfumes, and are used in the preparation of explosives, synthetic resins, etc.

14. The manufacture of intermediates and synthetic products from the primary coal tar products has not yet been developed in the country. The most important basic material essential for such development is, however, benzene, which is now available in good quantity. The coal tar intermediates for the preparation of drugs and dyes are common and there should be a close co-ordination in the plans for the development of the manufacture of dyes and drugs in this country.

FUEL RESEARCH BOARD TO ENCOURAGE PRODUCTION OF BETTER TAR AND MANUFACTURE OF INTERMEDIATES AND SYNTHETIC CHEMICALS FROM PRIMARY PRODUCTS OF COAL DISTILLATION

15. In view of the large number of important organic chemical substances essential for the chemical industry, that can be obtained from coal tar, it seems justifiable to pay much greater attention to the problem of obtaining larger quantities, better grades and higher yields of coal tar and the Fuel Research Board may well consider the problem with a view to find a satisfactory solution. The Board should also initiate active measures for the manufacture of intermediates and synthetic chemicals in the country from the primary products of coal distillation.

MEASURES REQUIRED FOR THE INCREASED MANUFACTURE OF BY-PRODUCTS FROM INDIAN COAL

16. The main factors to be considered regarding the production of the by-products from coal in India are the following :—

Of over 25 million tons of coal used per annum in the country for different purposes, only a little over 3 million tons of coal are subjected to a process of distillation : chiefly for making metallurgical coke in coke ovens and to a small extent for the manufacture of gas in the gas works. About a million tons of soft coke per annum for domestic purposes are produced in the country ; but the manufacture at present is carried out by burning powdered coal in heaps in the open, and no effort is made to collect the tar, ammonia and other by-products. If this wasteful method is immediately stopped and coal is carbonised in suitably designed low temperature coke ovens, a large quantity of valuable by-products could be recovered. At the same time the soft coke for domestic use would probably be of a better quality than at present. Also, there is a great scope for increased use of soft coke in place of coal for all

domestic purposes and for several of the industrial processes. At present first-class Indian coal is used in many industrial operations, as lower grades of Indian coal are considered unsuitable. The resources of high grade coal in the country are extremely limited, and it is of the highest importance that they should be conserved carefully by using in their place soft coke made from lower grades of coal as far as possible. By proper blending and low temperature carbonisation under controlled conditions, it is possible that soft coke could be obtained from several varieties of lower grades of Indian coal that are suitable for coking. This will at the same time make available large quantities of important by-products of coal. In a country such as India where petroleum is available only in limited quantities the production of liquid fuel by low temperature carbonisation of coal would be highly important.

17. There is a large variety of coal occurring in the country and it is impossible to make a statement as to what proportion of these would be suitable for low temperature carbonisation, or, what percentage of coal at present used in industrial operations it would be possible to substitute by soft coke. These are matters which should be very carefully examined and studied in the Fuel Research Laboratories. Precise information on the subject could only be available after very careful experiments and research. It could, however, be definitely stated now, that such research and study would be very much worthwhile. The possibilities of increased production of valuable by-products by low temperature carbonisation of coal are highly promising and economy in the use of high grade coal by partial substitution of it by soft coke is definitely possible.

18. The Panel on Iron and Steel has recommended more than 100 per cent increase in the production of steel within the next 5-6 years. This will involve the distillation of much larger quantities of coal in high temperature coke ovens. Up till recently, not much attention was paid to the recovery of by-products, other than coke, in these high temperature coke ovens. During the war, however, plants were installed for the recovery of benzene and toluene from the coke oven gas. It is imperative that arrangements should also be made for the recovery of these important chemicals from coke oven gas in the new high temperature coke ovens that would be installed for the preparation of metallurgical coke for the increased production of steel. Efforts should also be made for full utilisation of all high temperature coke oven tars.

19. If all the steps indicated above are taken, India will have in the near future adequate supply of coal distillation products for her industrial requirements for the development of chemicals, plastics, drugs, dyes, explosives and other industries.

NOTE ON

A BUREAU OF MINES FOR INDIA

By D. N. Wadia

1. The formation of a Department of Mines in India is a subject which has assumed much importance to-day and needs to be viewed broadly

from various angles. That India has gone on so far without a properly constituted Mining Department, and that Government's various mining projects (Government of India are to-day large scale miners in the country) have somehow carried on the job without any co-ordinating agency, is doubtless due to the fact that the mining industry in India (outside Government mines and a few large foreign corporations) has remained in an infant stage of development. There are already signs that in the planned industry of the future, mining by private enterprise will attain much greater proportions. Questions of great importance are still unsettled with regard to several matters connected with the law of mines in British India. Already the necessity for a Mining Bureau has become apparent with the Central Government trying to obtain control over the mining and utilisation of minerals like petroleum, coal and mica. Without such an agency, provided with a technical staff, there can be no control over mining methods production and movement of minerals, regulations regarding the grant of mining concessions, lease laws, etc. In various countries of the British Commonwealth, a department charged with the above duties is affiliated to the Geological Survey, although it may remain a separate parallel organisation under the same Ministry. A similar practice may be adopted in India to the mutual benefit of the G.S.I. and the new organisation.

2. So far the bulk of mining in India—gold, petroleum, coal, copper, manganese has been done by European capital and technical skill, of the remaining a good part is done by the State, while only a small fraction has been performed by Indian industrialists. With the mining industry of India in this state of organisation, having only to supply an insignificant domestic demand for minerals, but largely concerned with raising of Government's requirements of coal and salt, or with the export of almost the entire bulk of its raisings of gold, manganese, mica, ilmenite, saltpetre and a number of minor minerals, no need was felt for a Central Organisation to look after improvements in the methods or the economics of mining. Such questions as conservation of the mineral reserves, prevention of wasteful mining methods, utilisation of treatment of minerals for the benefit of local industries and checking the wanton abandonment of mines in a manner which made their future working dangerous or impossible, received no attention. Perhaps the greatest culprits in this latter respects have been the petty miners of the small city capitalists, who engage in manganese mining or mica mining on Zamindari lands on the principle of trade in cotton jute or wheat and who abandon their mine workings on the first setback, doing incalculable damage to the partly exposed deposits.

3. The Government of India's determination to introduce planned economy and the preparation of long range plans for an all round development of the country's basic resources, bring to the fore the need of a Department to attend to such practical aspects of mining as systematic

d. economic working of minerals deposits, their proper treatment, utilisation and development, appropriate system of mine leasing, royalties, etc. Below I give the outline of a scheme for forming such a department, constituted on the lines of the Canadian Bureau of mines.

4. Amongst the functions of a Department or a Bureau of Mines in India will be the following. The annexed sketch-plan shows the various aspects of mining and related matters to be included in the proposed Mines Department, in relation to the Geological Survey.

- (i) Co-ordination and regulation of working of Govt. and Railway Board collieries, the Khowra and Kohat Salt Mines, the Khowra gypsum and some Bihar mica mines.

The different Departments which have hitherto worked these mines need not be asked to hand over the mines to the Bureau of Mines so long as they consent to work them in conformity with the plan and policy laid down by the Bureau of Mines.

- (ii) Mines inspection, looking after safety of mines, ventilation and hygiene, hours of work, use of explosives, etc. This is the function discharged by the existing "Mines Department" of the Govt. of India.
- (iii) Mineral treatment and utilisation—treatment, refining and concentration of ores and economic minerals on pilot-plant scale.
- (iv) Mining research, mineral technology, fuel research statistics, etc. as well as research on conservation and prevention of waste. The Sand-stowing and Coal-grading Boards of the Bengal-Bihar collieries as well as the present "Mica control" may also be assigned to this Branch.
- (v) Mineral leasing royalty rights, marketing of minerals, control of production and export of key minerals; and a bureau of public information.

5. The Bureau of Mines need not undertake mining operations or exploitation of minerals on behalf of the State, but will have authority to order compliance with the law or regulations under which mining operations are to be conducted. Mining industry in India is yet in the infancy and private enterprise will need to be encouraged as far as possible, consistently with these checks.

6. A nuclear staff for the new Mining Department exists in the Department of the Chief Inspector of Mines; the Mining Engineers and technical staff engaged in working of the mines of the Railway Board, of the Central Board of Revenue and those of the Utilisation Branch of the Geological Survey of India, lately dissolved, may supply the main personnel. Addition of one or two each of metallurgists, chemists, and

geologists will be needed to compose the remaining scientific and research staff, but the staff of the Mines Bureau need not be in full complement in its early stages. The Director may be either a Geologist of High standing or a Mining Engineer of long experience of Indian Mines, or may be recruited from abroad on a five-year contract.

7. The question, which Central Department of the Government of India should be responsible for administration of mining industry and the proposed Bureau of Mines, has to be settled. It may be discussed by the P. & D. Department in conjunction with Labour, Railway Board and the Central Board of Revenues. I gathered from discussions with the Geological Survey of India that the functions of the two bodies are apart and they do not want the Bureau of Mines to be attached to them. This may be so from the point of view of administrative facility, but there is obviously much advantage in having these two parallel departments under the same Ministry. If the two sections of Geology and Mines are considered to be too small for the portfolio of a separate Hon'ble Member, they may constitute one clearly marked division or block under one Ministry. On the analogy of the Ministry of Mines of the United Kingdom, or of the Canadian Ministry of Mines and Researches (of which Mines and Geology is a Branch), and of some States of the Australia Commonwealth (such as Victoria, for instance), and looking to the development and future importance mining will assume in India, the latter suggestion may not appear fantastic.

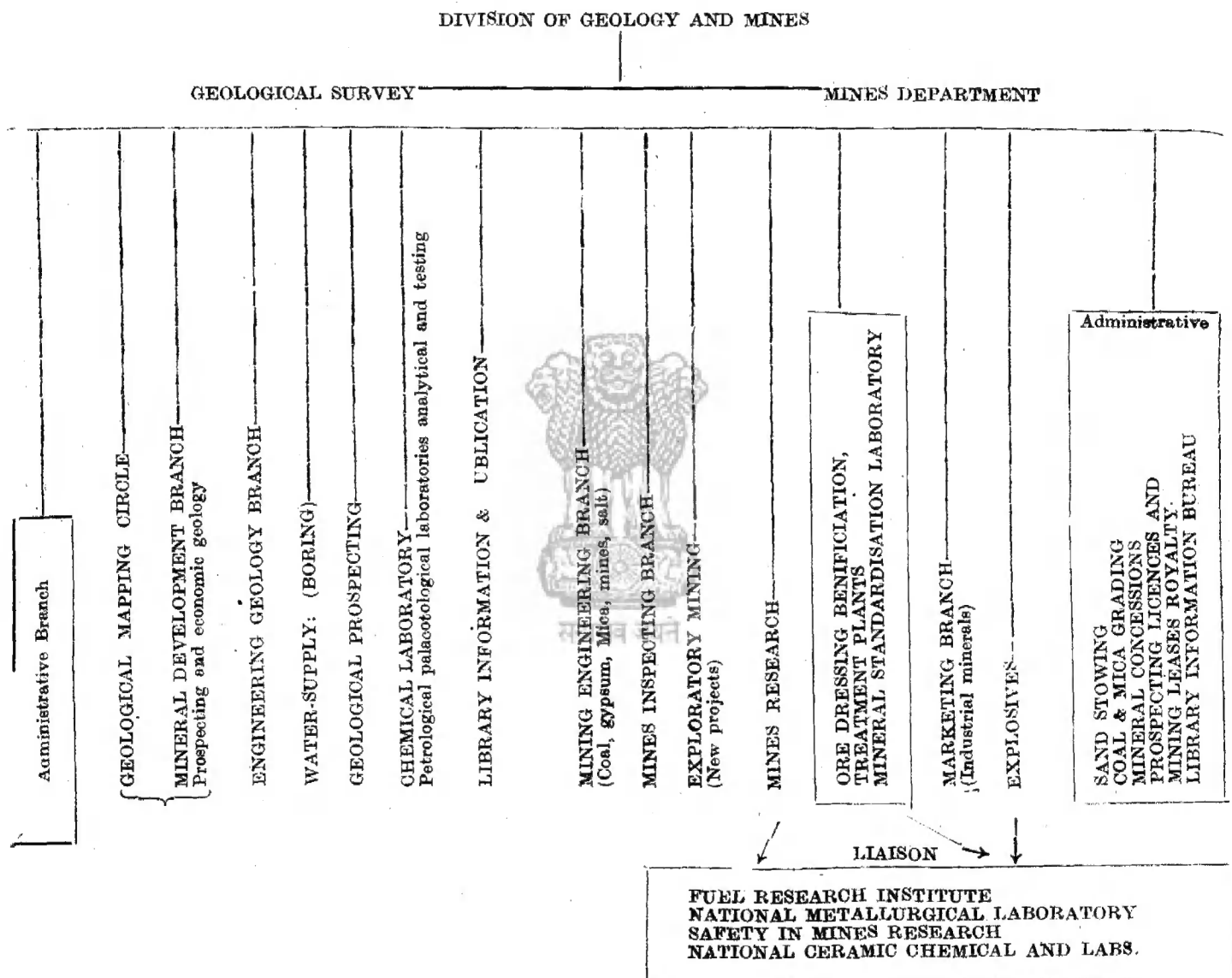
8. The Labour Department appear to have accepted the principle of the establishment of a Bureau of Mines and have called for observations of the various Departments concerned. Mr. Prior asks us whether a Mines Department will be advantageous to mineral development in India. I do not think there is any doubt about it so far as mining in India in the future is concerned. If the numerous plans, which are under active preparation by the various Research Committees of the B. S. and the Industrial Panels, for expansion of the Iron and Steel Alloys, Non-ferrous Metals, Fuels, Heavy Chemicals, Cement Ceramics, Glass, Mineral Fertilisers, are to succeed, this should be an early step. To take coal mining a basic factor in all industries, as an example conflicting interests of individual owners (mostly the smaller miners) and companies so interfere with the exploitation of Indian Coal in accordance with a unified national plan that even elementary technical innovations, leaving aside the bigger question of mechanisation, are found impossible. In raising the 27 million tons of coal for annual consumption, at least an equal quantity is lost or rendered useless under-ground. More than forty separate fires in twenty-two different collieries have damaged beyond repair large sections of the Jharia Coalfield, while millions of tons of coal has been lost by roof collapses and subsidence, and many more millions are rendered unworkable by the unscientific and unregulated mining methods of individual owners who look to the marketing needs of the hour and have no incentive to look to the conservation aspect of the coal reserves. This colossal year

waste of a valuable asset will be greatly reduced, if not prevented, when there is a Central Department to enforce a plan of rationalised mining of coal, such as has been advocated by various Government instituted Coal Enquiry Committees but has not been enforced so far for want of a Central agency.

9. Mr. Prior's enquiry from the Supply Department, Railway Board and Finance Department whether they will be prepared to hand over to the Mines Department the management and control of the mines they are administering at

present—seems to be premature. For the new Department, if formed, will not, at any rate, at present undertake actual mining operations or exploitation of minerals. For a considerable length of time its primary function will be to introduce and enforce compliance with a common mining plan or policy in the present unregulated mining practice. It would be sufficient if these Departments accepted in principle the need for the creation of a Central Agency for administering of mining matters.

Annex.— Sketch plan.



**154. LETTER DATED 20TH FEBRUARY FROM
MESSRS BABCOCK & WILCOX LIMITED.**

A. Pulverised Fuel.

In our opinion it is not generally true to say that overall efficiency is increased by pulverised fuel firing although in a particular case this might be so. The decision as to what method to adopt depends entirely on the conditions peculiar to each installation.

Modern designs of automatic stoker can burn any fuel which can be burnt by pulverised firing.

On some fuels the latter may show a slightly higher combustion efficiency which would be offset by the greatly increased auxiliary power required for pulverising etc. also the higher capital cost of such installations and higher maintenance.

Pulverised fuel firing is often favoured where very large boiler units are under consideration due to certain design difficulties which effect automatic stokers in the larger sizes. As, however, boilers of 200,000 lbs./hr. evaporation and above are satisfactorily working with stokers in many parts of the world this factor is not likely to be of any importance in India where smaller units are used

With regard to developments in India pulverised fuel fired boiler plants have been installed in two electric generating stations, three textile mills and one copper smelting plant. In the case of one generating station the plant has been removed and replaced by stokers. In the case of the other, the plant is still operating but recent extension boilers have all been stoker fired. In the case of the textile mills, one mill has removed the pulverising plant and installed stokers ; another is still using pulverised firing but the extensions are stoker fired. We have no knowledge of the present position at the third plant. At the copper smelting works the plant is working satisfactorily.

With pulverised fuel firing the capital cost of the plant is greater than with stoker firing ; the cost of

maintenance is greater and more skilled operation is required. On the other hand combustion efficiency (but not overall efficiency is slightly greater in some coals and the boilers are rather more flexible in operation. Stokers are therefore more suitable for Indian conditions but pulverised firing may be quite advantageous in some cases. Such cases can only be decided after a detailed examination of the fuel, type of load, size of units, etc.

B. Colloidal Firing

Colloidal firing is not in extensive use anywhere and little technical information is available. It does not appear to be a promising field of investigation in this country. So far as known no developments have taken place in India.



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